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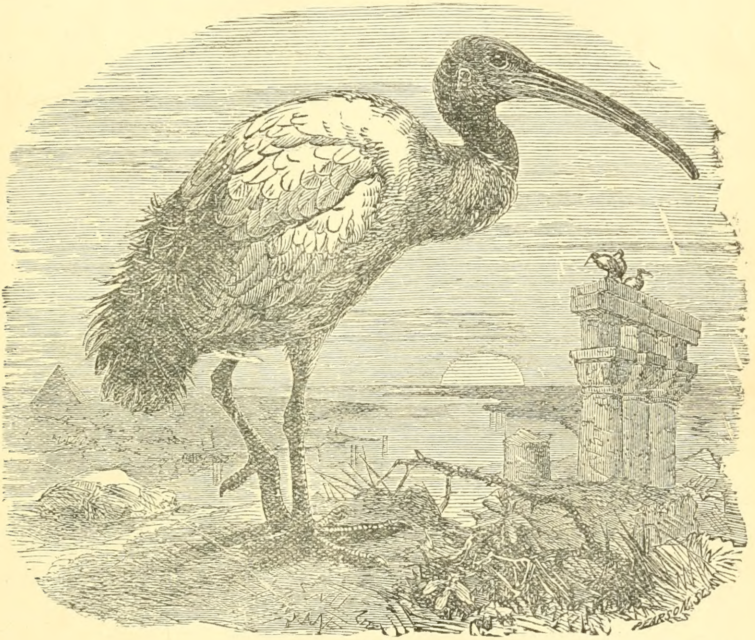
THE IBIS,

A
QUARTERLY JOURNAL OF ORNITHOLOGY.

EDITED BY
PHILIP LUTLEY SCLATER, D.Sc., F.R.S.,
AND
A. H. EVANS, M.A., F.Z.S.



VOL. VI. 1912.

NINTH SERIES.

227997

Delectasti me, Domine, in operibus manuum tuarum.

LONDON:
R. H. PORTER, 7 PRINCES STREET, CAVENDISH SQUARE, W.
1912.

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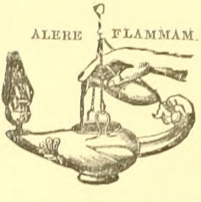
ALERE FLAMMAM.

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PREFACE.

On completing the Fifty-fourth Volume of 'The Ibis' by the issue of the Two-hundred-and-tenth Number, and thus bringing the Ninth Series of our Journal to a close, the Editors have little to say except to thank the Contributors for the unfailing support which has been received from them during the past six years, and to express a hope that a similar assistance may be continued to their successor. Beginning with the modest number of four hundred pages, 'The Ibis' has now gradually increased to double its primitive size, and the volume has become a formidable handful which should, perhaps, be rather diminished than increased. But we leave this question to the Editor of the Tenth Series, who is not altogether inexperienced in such matters.

The most interesting event in Ornithology that has occurred in 1912 has been, we think, the starting of the *Second* Expedition to the Snow Mountains of New Guinea, under the leadership of Mr. Wollaston, which, if the arrangements made can be properly carried out, is at about this time landing on the coast of that wondrous land. It need not be openly called a "Bird-Expedition," for it has also other objects, but no explorer of New Guinea can fail to be interested in the astonishing eccentricities of the Papuan Avifauna.

We wish every sort of success to the new Expedition, in which, we are sure, all our readers will join us heartily.

P. L. S.
A. H. E.

Offices of the
ZOOLOGICAL SOCIETY OF LONDON,
Regent's Park, London, N.W.,
October 1st, 1912.

RULES

OF THE

BRITISH ORNITHOLOGISTS' UNION.

Agreed to at the General Meeting held 10*th May*, 1871,
with amendments up to 10*th May*, 1911, *inclusive.*

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1. This Society shall be called "The British Ornithologists' Union," and shall have for its object the advancement of the Science of Ornithology.

2. The British Ornithologists' Union shall consist of Ordinary Members, Honorary Members, Honorary Lady Members, Extraordinary Members, Colonial Members, and Foreign Members.

Ordinary Members shall be Ornithologists of any country, elected in a manner hereafter mentioned.

Honorary Members shall be eminent Ornithologists residing abroad, and shall not exceed ten in number.

Honorary Lady Members shall be ladies qualified by special ornithological knowledge and shall not exceed ten in number.

An Honorary Member coming to reside in this country shall become an Extraordinary Member, unless he prefers to be placed upon the list of Ordinary Members.

Colonial Members shall be eminent Ornithologists residing in the British Colonies and India, and shall not exceed ten in number.

Foreign Members shall be eminent Foreign Ornithologists, and shall not exceed twenty in number.

3. Ordinary Members shall be elected by Ballot at the Annual General Meeting. No person shall be declared duly

elected unless two-thirds of the number balloting shall vote in his favour. Ordinary Members only are entitled to vote. Honorary, Honorary Lady, Colonial, and Foreign Members, when there are vacancies in the list, shall be elected in the same way.

4. No person shall be balloted for whose name shall not have been proposed on a form provided for the purpose by the Secretary and signed by the Proposer, on his personal knowledge, and by two other Members. Candidates for Honorary, Foreign, and Colonial Membership shall be proposed by the Committee only. Ordinary Members wishing to recommend Candidates for these honours should communicate with the Secretary, who will bring the names of their Candidates before the Committee. The list of Candidates, with their Proposers and Seconders shall be circulated among the Members at least fourteen days before the Ballot along with the summonses for the General Meeting.

5. Every New Ordinary Member shall pay an Entrance Fee of £2, and an Annual Subscription of £1 on his election, and every Ordinary Member shall pay an Annual Subscription of £1 on the 1st of January of each year. Every new Ordinary Member failing to pay his Entrance Fee and his first Annual Subscription before the 31st of December immediately following his election shall have his election annulled, unless he shall furnish a satisfactory explanation.

6. Any Member whose subscription is three years in arrears shall, *ipso facto*, cease to belong to the British Ornithologists' Union, but shall be eligible for re-election by Ballot on paying up his arrears. In such case, however, no fee for re-admission shall be required.

7. If, in the opinion of the Committee, any Member shall have acted in a manner injurious to the interests or good name of the Union, or shall have personally assisted in or connived at the capture or destruction of any bird, nest, or eggs in the British Isles, by purchase or otherwise, likely in the opinion of the Committee, to lead to the extermination or serious diminution of that species as a British bird, the

Secretary shall be directed to send a registered letter to that Member, stating the facts brought before the Committee and asking for an explanation of the same, but without mentioning the source from which such information was obtained. After allowing a reasonable time (not less than a clear fortnight after the receipt of the Secretary's letter) for reply or for appearing in person before the Committee if he so desire, the Committee, providing not less than four are agreed, shall have power to remove that gentleman's name from the List of Members without assigning any reason. Such Member may, if he so desire, stand for re-election by Ballot at the next Annual General Meeting, and in the event of his re-election no fee for re-admission shall be required.

8. The funds derived from entrance fees and annual subscriptions shall be devoted primarily to the publication of 'The Ibis.'

9. Should the sum thus obtained be insufficient to cover the liability incurred, the deficit shall be raised by an additional subscription, to be levied at the ensuing General Meeting.

10. The Editor of 'The Ibis' shall be elected at the Annual General Meeting, and his appointment shall continue for six years, unless otherwise determined. Twelve months' notice of a change must be given on either side.

11. The business of the British Ornithologists' Union shall be conducted by a Committee, consisting of a President, Secretary, Editor of 'The Ibis'; and *three Members* to be elected at the General Meeting. One of the non-official Members shall retire each year.

12. The Annual General Meeting shall take place on some convenient day in the month of April or May, to be fixed by the Committee; and the ordinary business transacted at such Meeting shall be the passing of the accounts of 'The Ibis' for the preceding year, the regulation of matters having reference to the conduct of that Journal, the election of the Officers and Committee, and the election of new Members.

13. A Special General Meeting can be summoned by any ten Members of the British Ornithologists' Union by a written requisition addressed to the Committee for that purpose, which requisition shall specify the object of such Special Meeting. At such Special Meeting, however, the special business to consider which it was convened shall alone be discussed.

14. One copy of 'The Ibis' shall be delivered to every Honorary and Extraordinary Member gratis, and also to every Ordinary Member whose subscription is not in arrear.

15. Twenty-five separate copies are furnished to each contributor of an article to 'The Ibis,' gratis. Contributors may have further copies on application to the Editor, on paying the expenses incurred in producing them.

The original paging of the letterpress and numbering of the plates shall always be retained in the separate copies, as also the signatures of the sheets; but additional paging and numbering may be likewise added, if required.

Separate copies shall in every case bear on the title-page the name and date of the publication from which they are extracted. No alteration shall be made in the letterpress or plates of the separate copies without the leave of the Committee of the Union.

16. Any alterations in these rules may be made at the Annual General Meeting provided due notice shall have been given thereof in the circular convening the Meeting.

J. LEWIS BONHOTE,
Secretary.

BRITISH ORNITHOLOGISTS' UNION,
c/o THE ZOOLOGICAL SOCIETY OF LONDON,
REGENT'S PARK, LONDON, N.W.
10 *May*, 1911.

LIST OF THE MEMBERS

OF THE

BRITISH ORNITHOLOGISTS' UNION.

1912.

[An asterisk indicates an Original Member. It is particularly requested that Members should give notice to the Secretary of the Union of any error in their addresses or descriptions in this List, in order that it may be corrected.]

Date of Election.

1911. Alexander, Christopher James; Via Lucullo 11, Rome, Italy.

1911. Alexander, Horace Gundry; King's College, Cambridge; and 3 Mayfield Road, Tunbridge Wells, Kent.

1888. Aplin, Oliver Vernon; Stonehill House, Bloxham, Oxon.

1896. Archibald, Charles F.; 2 Darnley Road, West Park, Leeds, Yorks.

5 1896. Arrigoni degli Oddi, Count Ettore, Professor of Zoology, University, Padua; and Ca' oddo, Monselice, Padua, Italy.

1901. Arundel, Major Walter B., F.Z.S.; High Ackworth, Pontefract, Yorks.

1901. Ashby, Herbert; Broadway House, Brookvale Road, Southampton.

1908. Ashworth, Dr. John Wallwork, M.R.C.S., L.R.C.P., F.R.G.S., F.G.S.; Thorne Bank, Heaton Moor, near Stockport, Cheshire.

1897. Astley, Hubert Delaval, M.A., F.Z.S.; Benham Park, Newbury, Berks.

10 1885. Backhouse, James, F.Z.S.; The Red House, Knaresborough, Yorks.

1904. Bahr, Philip Heinrich, M.A., M.B., M.R.C.S., L.R.C.P., F.Z.S.; c/o Ceylon Government Medical Service, Newara Eliya, Ceylon.

1901. Bailward, Col. Arthur Churchill, F.Z.S. (R.F.A.); 64 Victoria Street, S.W.

1892. Baker, E. C. Stuart, F.Z.S.; 6 Harold Road, Upper Norwood, S.E.

Date of Election

1901. Baker, John C., M.B., B.A.; Ceely House, Aylesbury, Bucks.

15 1908. Ball, Crispin Alfred (Sudan Civil Service); Geteina, White Nile Province, Sudan.

1889. Balston, Richard James, F.Z.S.; Springfield, Maidstone, Kent.

1906. Bannerman, David A., B.A.; The Orchard, King's Langley, Herts.

1890. Barclay, Francis Hubert, F.Z.S.; The Warren, Cromer, Norfolk.

1885. Barclay, Hugh Gurney, F.Z.S.; Colney Hall, Norwich, Norfolk.

20 1889. Barrett-Hamilton, Major Gerald E. H., F.Z.S.; Kilmanock, Campile, Waterford, Ireland.

1881. Barrington, Richard Manliffe, LL.D.; Fassaroe, Bray, Co. Wicklow, Ireland.

1903. Bartels, Max.; Pasir Datar, Halte Tjisaät (Preanger), Java, Dutch East Indies.

1906. Bates, George L., C.M.Z.S.; Bitye, Ebolowa, Kamerun, West Africa.

1912. Baxendale, Francis Richard Salisbury; Commissioner of Famagusta, Cyprus.

25 1912. Becher, Harry, C.E.; Strathmore, Burnham-on-Crouch, Essex.

1912. Beebe, C. William; Curator of Birds, New York Zoological Park, New York, U.S.A.

1910. Beeston, Harry; Sunnymead, South Street, Havant, Hants.

1897. Benson, John; The Post Office, Vancouver, B.C.

1897. Berry, William, B.A., LL.B.; Tayfield, Newport, Fifeshire.

30 1907. Bethell, The Hon. Richard; 30 Hill Street, Mayfair, W.

1907. Bickerton, William, F.Z.S.; The Firs, Farraline Road, Watford, Herts.

1880. Bidwell, Edward; 1 Trig Lane, Upper Thames Street, E.C.

1892. Bird, The Rev. Maurice C. H., M.A.; Brunstead Rectory, Stalham, S.O., Norfolk.

1894. Blaauw, Frans Ernst, C.M.Z.S.; Gooilust, 'sGraveland, Hilversum, Noord-Holland.

1912. Blaine, Gilbert, F.Z.S.; 5 a The Albany, Piccadilly, W.

35 1892. Blathwayt, The Rev. Francis Linley, M.A.; Doddington Rectory, Lincoln.

1897. Bonar, The Rev. Horatius Ninian, F.Z.S.; Saltoun, Pencaitland, N.B.

1905. Bone, Henry Peters, F.Z.S.; 28 Adelaide Crescent, Brighton.

Date of Election.

1894. Bonhote, John Lewis, M.A., F.L.S., F.Z.S.; Gade Spring Lodge, Hemel Hempstead, Herts. (*Secretary & Treasurer.*)

40 1906. Boorman, Staines; Heath Farm, Send, Woking, Surrey.

1898. Booth, George Albert; Whalley Range, Longton, Lancs.

1904. Booth, Harry B.; Ryhill, Ben Rhydding, *viâ* Leeds, Yorks.

1907. Boraston, John Maclair; Ingleside, Stretford, near Manchester.

1908. Borrer, Clifford Dalison; 6 Durham Place, Chelsea, S.W.

45 1910. Brabourne, Wyndham Wentworth, Lord, F.Z.S.; 8 Talgarth Mansions, Talgarth Road, West Kensington, W.

1895. Bradford, Sir John Rose, K.C.M.G., M.D., D.Sc., F.R.S., F.Z.S; 8 Manchester Square, W.

1902. Bridgeman, Commdr. The Hon. Richard O. B., R.N.; H.M.S. "Druid," 1st Destroyer Flotilla, Home Fleet.

1909. Briggs, Thomas Henry, M.A., F.E.S.; Rock House, Lynmouth, R.S.O., N. Devon.

1902. Bristowe, Bertram Arthur; The Cottage, Stoke D'Abernon, Cobham, Surrey.

50 1885. Brockholes, William Fitzherbert; Claughton-on-Brock, Garstang, Lancashire.

1908. Brook, Edward Jonas, F.Z.S.; Hoddam Castle, Ecclefechan, N.B.

1890. Brooke, Harry Brinsley; 33 Egerton Gardens, S.W.

1899. Brooke, John Arthur, J.P.; Fenay Hall, Huddersfield; and Fearn Lodge, Ardgay, Ross-shire.

1912. Brown, Thomas Edward; c/o Messrs. G. Beyts & Co., Suez, Egypt.

55 1900. Bruce, William Speirs, LL.D., F.R.S.E.; Scottish Oceanographical Laboratory, Surgeon's Hall, Edinburgh.

1907. Buckley, Charles Mars; 4 Hans Crescent, S.W.

1906. Bucknill, John Alexander Strachey, M.A., F.Z.S.; Attorney General's Chambers, Hong Kong, China.

1895. Bulgaria, H.M. Ferdinand, King of, F.Z.S.; The Palace, Sofia, Bulgaria.

1908. Bunyard, Percy Frederick, F.Z.S.; 57 Kidderminster Road, Croydon, Surrey.

60 1907. Butler, Arthur Gardiner, Ph.D., F.L.S., F.Z.S.; 124 Beckenham Road, Beckenham, Kent.

1899. Butler, Arthur Lennox, F.Z.S.; Superintendent of Game Preservation, Sudan Government, Khartum, Sudan.

Date of Election.

1884. Butler, Lieut.-Col. E. A.; Winsford Hall, Stokesby, Great Yarmouth.

1900. Buttress, Bernard A. E.; Craft Hill, Dry Drayton, Cambridge.

1905. Buxton, Anthony; Knighton, Buckhurst Hill, Essex.

65 1884. Buxton, Geoffrey Fowell, F.Z.S.; Dunston Hall, Norwich, Norfolk.

1912. Buxton, Patrick Alfred; Fairhill, Tonbridge, Kent.

1896. Cade, Francis J.; Mosborough, The Park, Cheltenham, Gloucestershire.

1889. Cameron, Ewen Somerled, F.Z.S.; Fallon, Montana, U.S.A.

1896. Cameron, Capt. James S.; (2nd Bn. Royal Sussex Regt.) Low Wood, Bethersden, Ashford, Kent.

70 1888. Cameron, John Duncan; Low Wood, Bethersden, Ashford, Kent.

1892. Campbell, Charles William, C.M.G., C.M.Z.S., H.B.M. Chinese Consular Service; British Legation, Peking, China.

1909. Campbell, David Callender, J.P.; Templemore Park, Londonderry, Ireland.

1909. Carroll, Clement Joseph; Rocklow, Fethard, Co. Tipperary, Ireland.

1904. Carruthers, Alexander Douglas M.; Little Munden Rectory, Ware, Herts.

75 1908. Carter, Thomas; Wensleydale, Broome Hill (Great Southern Railway), Western Australia.

1890. Cave, Charles John Philip, M.A., F.Z.S.; Ditcham Park, Petersfield, Hants.

1884. Chapman, Abel, F.Z.S.; Houxty, Wark-on-Tyne, Northumberland.

1882. Chase, Robert William; St. Brelâde, King's Norton, Worcestershire.

1908. Cheesman, Robert E.; "The Vents," Cranbrook, Kent.

80 1897. Cholmley, Alfred John, F.Z.S.; Place Newton, Rillington, Yorks.

1910. Chubb, Charles, F.Z.S.; British Museum (Natural History), Cromwell Road, S.W.

1912. Clark, George Wingfield; Anglesey Abbey, near Cambridge; and Invermere, Lake Windermere, British Columbia.

1904. Clarke, Capt. Goland van Holt, D.S.O., F.Z.S.; Chilworth Court, Romsey, Hants.

Date of Election.

1889. Clarke, Lt.-Col. Stephenson Robert, F.Z.S.; Borde Hill, Cuckfield, Sussex.

85 1880. Clarke, William Eagle, F.L.S.; Royal Scottish Museum, Edinburgh.

1904. Cochrane, Captain Henry Lake, R.N.; Mounie Castle, Old Meldrum, Aberdeenshire, N.B.; and Junior United Service Club, Charles Street, St. James's, S.W.

1898. Cocks, Alfred Heneage, M.A., F.Z.S.; Poynetts, Skirmett, near Henley-on-Thames, Oxon.

1895. Coles, Richard Edward; Ashley Arnewood, New Milton, S.O., Hants.

1911. Collett, Anthony Keeling; 5 Stone Buildings, Lincoln's Inn, W.C.

90 1904. Collier, Charles, F.Z.S.; Bridge House, Culmstock, Devon; and Windham Club, St. James' Square, S.W.

1909. Congreve, William Maitland (Lieut. R.A.); Breinton House, near Hereford.

1910. Conigrave, Charles Price, F.R.G.S., R.A.O.U.; Department of Agriculture, Perth, Western Australia.

1888. Cordeaux, Major William Wilfrid, (late 21st Lancers), Hopebourne, Harbledown, Canterbury, Kent.

1896. Cowie, Col. Alexander Hugh, F.Z.S.; Uddens House, Wimbourne, Dorset.

95 1894. Crewe, Sir Vauncey Harpur, Bt.; Calke Abbey, Derby.

1903. Crowley, John Cyril, M.A.; 5 Beech House Road, Croydon, Surrey.

1898. Crowley, Reginald Alwyn; Bernards, Vines Cross, Sussex; and 22 High Street, Croydon, Surrey.

1899. Curtis, Frederick, F.R.C.S.; Lyndens, Redhill, Surrey.

1877. Dalgleish, John J.; Brankston Grange, Bogside Station, Alloa, N.B.

100 1896. Danford, Capt. Bertram W. Y., R.E.; Bermuda.

1897. Darnley, Ivo Francis Walton, Earl; Cobham Hall, Gravesend, Kent; and Clifton Lodge, Athboy, Co. Meath, Ireland.

1883. Davidson, James, F.Z.S.; 32 Drumsheugh Gardens, Edinburgh.

1908. Davies, Claude G.; 'E' Squadron, Cape Mounted Riflemen, Matatiele, E. Griqualand, South Africa.

1905. Davis. Kenneth James Acton; Julian Hill, Harrow; and King's College, Cambridge.

Date of Election.

105 1909. Delmé-Radcliffe, Capt. Alfred (105th Maratha Light Infantry); c/o Messrs. Cox & Co., Bombay, India.

1902. Dent, Charles Henry; c/o Messrs. Barclay & Co. Ltd., Darlington, Durham.

1891. De Vis, Charles W.; Queensland Museum, Brisbane, Australia; and c/o Mr. B. Quaritch, 11 Grafton Street, W.

1893. De Winton, William Edward, F.Z.S.; Southover Hall, Burwash, Sussex.

1896. Dobbie, James Bell, F.R.S.E., F.Z.S.; 12 South Inverleith Terrace, Edinburgh.

110 1889. Dobie, William Henry, M.R.C.S.; 2 Hunter Street, Chester.

1911. Dodsworth, Pelham Theobald Landale, F.Z.S.; Carlton Grove, Simla, S.W., (Punjab), India.

1904. Dorrien-Smith, Thomas Algernon, J.P., D.L.; Tresco Abbey, Scilly Isles.

1904. Drake-Brockman, Dr. Ralph Evelyn, M.R.C.S., L.R.C.P., F.Z.S.; Cheriton, 26 Portchester Road, Bournemouth, Hants.

1865. Dresser, Henry Eeles, F.L.S., F.Z.S.; Riverview, Maidenhead, Berks.

115 1896. Drewitt, Frederic Dawtrey, M.A., M.D., F.Z.S.; 14 Palace Gardens Terrace, Kensington, W.

1890. Drummond-Hay, Col. James A. G. R.- (Coldstream Guards); Seggieden, by Perth, N.B.

1904. Duckworth, George Herbert; Philpots, East Grinstead, Sussex.

1878. Durnford, W. Arthur, J.P.; Elsecar, Barnsley, Yorks.

1905. Dutton, The Hon. and Rev. Canon Frederick George; Bibury, Fairford, Gloucestershire.

120 1903. Earle, Edward Vavasour; 6 Broad Street Place, E.C.

1895. Elliot, Edmund A. S., M.R.C.S.; Woodville, Kingsbridge, South Devon.

1884. Elliott, Algernon, C.I.E.; 16 Belsize Grove, Hampstead, N.W.

1902. Ellison, The Rev. Allan, M.A.; Althorpe Rectory, Doncaster, Yorks.

1904. Elton, Henry Brown, B.A., M.B., B.C., M.R.C.S., L.R.C.P.; Glenview, Llandovery, South Wales.

125 1866. Elwes, Henry John, F.R.S., F.Z.S.; Colesborne, Cheltenham, Gloucestershire.

Date of
Election.

1879. Evans, Arthur Humble, M.A., F.Z.S.; 9 Harvey Road, Cambridge. (*Joint Editor.*)

1888. Evans, William, F.R.S.E.; 38 Morningside Park, Edinburgh.

1905. Ewen, Guy L'Estrange (King's Messenger); St. James's Club, Piccadilly, W.

1892. Fairbridge, William George; 141 Long Market Street, Capetown, South Africa.

130 1909. Fanshawe, Capt. Richard D. (late Scots Guards); Adbury Holt, Newbury, Berks.

1894. Farquhar, Rear-Admiral Arthur Murray, C.V.O.; Granville Lodge, Aboyne, Aberdeenshire, N.B.

1898. Farquhar, Capt. Stuart St. J., R.N.; Naval & Military Club, Piccadilly, W.

1873. Feilden, Col. Henry Wemyss, C.B., C.M.Z.S.; Burwash, Sussex; and Junior United Service Club, S.W.

1901. Finlinson, Horace W., F.Z.S.; 5 Rosamond Road, Bedford.

135 1902. Flower, Capt. Stanley Smyth, F.Z.S.; Kedah House, Zoological Gardens, Giza, Egypt.

1912. Floyd, James Francis Murray, B.A.; The University, Glasgow.

1884. Forbes, Henry Ogg, LL.D., F.Z.S.; 46 Leinster Square, Bayswater, W.

1912. Foster, Arthur H., M.R.C.S., L.R.C.P.; 13 Tilehouse Street, Hitchin, Herts.

1903. Foster, Nevin Harkness; Hillsborough, Co. Down, Ireland.

140 1880. Foster, William; 39 Colville Gardens, Bayswater, W.

1887. Fowler, William Warde, M.A.; Lincoln College, Oxford.

1865. Fox, The Rev. Henry Elliott, M.A.; The Croft, Lytton Grove, Putney Hill, S.W.

1881. Freke, Percy Evans; Southpoint, Limes Road, Folkestone.

1895. Frohawk, Frederick William, F.E.S.; Stanley House, Park Road, Wallington, Surrey.

145 1909. Frost, William Edward, J.P.; Ardvreck, Crieff, Perthshire.

1881. Gadow, Hans, Ph.D., F.R.S., F.Z.S.; University Museum of Zoology, Cambridge.

1886. Gainsborough, Charles William Francis, Earl of; Exton Park, Oakham, Rutland.

1907. Gandolfi, Alfonso Otho Gandolfi-Hornyold, Duke, Ph.D.; Blackmore Park, Hanley Swan, Worcestershire.

Date of Election.

1900. Garnett, Charles; 9 Cleveland Gardens, Hyde Park, W.; and New University Club, St. James's Street, S.W.

150 1892. Gerrard, John, Government Inspector of Mines; Worsley, near Manchester, Lancs.

1902. Gibbins, William Bevington, F.Z.S.; Ettington, Stratford-on-Avon, Warwickshire.

1879. Gibson, Ernest, F.L.S., F.Z.S., F.R.G.S.; 25 Cadogan Place, S.W.; and c/o Messrs. Fraser, Stodart & Ballingall, 16 Castle Street, Edinburgh.

1902. Gillman, Arthur Riley; Heath Vale, Farnham, Surrey.

1904. Gilroy, Norman; Seaford, Sussex.

155 1903. Gladstone, Hugh Steuart, M.A., F.Z.S.; Capenoch, Thornhill, Dumfriesshire.

1908. Godman, Capt. Edward Shirley (2nd Dorset Regiment); Muntham, Horsham, Sussex.

* 1858. Godman, Frederick DuCane, D.C.L., F.R.S., F.Z.S.; 45 Pont Street, S.W.; and South Lodge, Horsham, Sussex. (*President.*) (*Gold Medallist.*)

* 1858. Godman, Percy Sanden, B.A., C.M.Z.S.; Muntham, Horsham, Sussex. (*Gold Medallist.*)

1906. Goodall, Jeremiah Matthews, F.Z.S.; 52 Oxford Gardens, North Kensington, W.

160 1901. Goodchild, Herbert; 66 Gloucester Road, Regent's Park, N.W.

1900. Goodfellow, Walter, F.Z.S.; Mont Fleuri, Southbourne Grove, Bournemouth, Hants.

1906. Gordon, Seton Paul, F.Z.S.; Auchintoul, Aboyne, Aberdeenshire, N.B.

1912. Gosse, Philip; Beaulieu, Hants.

1899. Gould, Francis Herbert Carruthers, F.Z.S.; Matham Manor House, East Molesey, Surrey.

165 1895. Grabham, Oxley, M.A.; The Museum, York.

1909. Grant, Claude Henry Baxter, F.Z.S.; 66 Hurlingham Road, Hurlingham, S.W.

1909. Grey, The Rt. Hon. Sir Edward, Bt., P.C., F.Z.S.; Falloden, Christon Bank, R.S.O., Northumberland.

1906. Griffith, Arthur Foster; 59 Montpellier Road, Brighton, Sussex.

1885. Guillemard, Francis Henry Hill, M.A., M.D., F.Z.S.; Old Mill House, Trumpington, Cambridge.

170 1908. Gurney, Gerard Hudson, F.Z.S., F.E.S.; Keswick Hall, Norwich, Norfolk.

Date of Election.

1870. Gurney, John Henry, F.Z.S.; Keswick Hall, Norwich; and Athenæum Club, Pall Mall, S.W.

1896. Gurney, Robert, F.Z.S.; Ingham Old Hall, Stalham, Norfolk.

1890. Gwatkin, Joshua Reynolds Gascoign; The Manor House, Potterne, Devizes, Wilts.

1891. Haigh, George Henry Caton; Grainsby Hall, Great Grimsby, Lincolnshire.

175 1887. Haines, John Pleydell Wilton; 17 King Street, Gloucester.

1898. Hale, The Rev. James Rashleigh, M.A.; Boxley Vicarage, Maidstone, Kent.

1905. Hamerton, Capt. Albert Edward, D.S.O., R.A.M.C., F.Z.S.; c/o Messrs. Holt & Co., 3 Whitehall Place, S.W.

1904. Harington, Major Herbert Hastings; 72nd Punjabis, Dera Ismail Khan, N. W. F. P., India; and c/o Messrs. Thos. Cook & Sons, Bombay, India.

1900. Harper, Edmund William, F.Z.S.; c/o Messrs. Wardle & Co., Nairobi, British East Africa.

180 1900. Harris, Henry Edward; 2 St. Aubyn's Mansions, Hove, Sussex.

1893. Hartert, Ernst J. O., Ph.D., F.Z.S.; The Zoological Museum, Tring, Herts.

1868. Harting, James Edmund, F.L.S., F.Z.S.; Edgewood, Weybridge, Surrey.

1893. Hartmann, William; Milburn, Esher, Surrey.

1899. Harvey, Major Robert Napier, R.E.; Broxhead Cottage, Bordon Camp, Hants.

185 1873. Harvie-Brown, John A., LL.D., F.R.S.E., F.Z.S.; Dunipace, Larbert, Stirlingshire, N.B.

1900. Hasluck, Percy Pedley Harford; The Wilderness, Southgate, N.

1902. Hatfeild, John Randall; Edlington Hall, Horncastle, Lincolnshire.

1898. Hawker, Richard Macdonnell, F.Z.S.; Bath Club, Dover Street, W.; and c/o Messrs. Dalgety & Co., 96 Bishopsgate Street Within, E.C.

1905. Hawkshaw, John Clarke, M.A., M.I.C.E., F.Z.S., F.G.S.; Hollycombe, Liphook, Hants; and 33 Great George Street, Westminster, S.W.

190 1905. Headley, Frederick Webb, M.A., F.Z.S.; Haileybury College, Herts.

1907. Hedges, George Mitchell; 42 Kensington Park Gardens, W.

Date of
Election.

1905. Hellmayr, Carl E.; Wittelsbacherstrasse 2 III., Munich, Germany.

1902. Hett, Geoffrey Seccombe, M.B., F.Z.S.; 8 Wimpole Street, W.

1899. Heywood, Richard, F.Z.S.; Narside, Narborough, Swaffham, Norfolk.

195 1900. Hills, John Waller,; Queen Anne's Mansions, Westminster, S.W.; and Highhead Castle, Carlisle, Cumberland.

1881. Holdsworth, Charles James, J.P.; Fernhill, Alderley Edge, Cheshire.

1912. Hony, George Bathurst; Woodborough Rectory, Pewsey, Wilts.

1905. Hopkinson, Emilius, M.B., D.S.O., F.Z.S.; 45 Sussex Square, Brighton, Sussex; and Medical Officer, Gambia, West Africa.

1904. Horsbrugh, Major Boyd Robert, F.Z.S.; c/o Messrs. Cox & Co., 16 Charing Cross, S.W.

200 1888. Horsfield, Herbert Knight; Crescent Hill, Filey, Yorks.

1895. Howard, Henry Eliot, F.Z.S.; Clarelands, near Stourport, Worcestershire.

1881. Howard, Robert James; Shearbank, Blackburn, Lancashire.

1911. Hudson, Edward; 15 Queen Anne's Gate, S.W.

1911. Hudson, Reginald; 16 Warwick Road, Stratford-on-Avon.

205 1890. Hunter, Henry Charles Vicars, F.Z.S.; Abermarlais Park, Llangadock, Carmarthenshire.

1901. Ingram, Collingwood, F.Z.S.; Sussex Mansions, Westgate-on-Sea, Kent.

1882. Innes Bey, Dr. Walter Francis; Curator of the Zoological Museum, School of Medicine, Cairo, Egypt.

1888. Jackson, Frederick John, C.B., C.M.G., F.L.S., F.Z.S.; Entebbe, Uganda, British East Africa; and The Red House, Aldeburgh, Suffolk.

1892. James, Henry Ashworth, F.Z.S.; Hurstmonceux Place, Hailsham, Sussex.

210 1896. Jesse, William, B.A., F.Z.S.; Meerut College, Meerut, India.

1889. Johnson, Frederick Ponsonby, B.A., J.P., D.L.; Castlesteads, Brampton, Cumberland.

1891. Johnston, Sir Harry Hamilton, G.C.M.G., K.C.B., F.Z.S.; St. John's Priory, Poling, near Arundel, Sussex.

1905. Johnstone, Edwin James, F.Z.S.; Burrswood, Groombridge, Sussex; and Junior Carlton Club, Pall Mall, S.W.

1900. Jones, Major Henry, F.Z.S. (late 62nd Regt.); East Wickham House, Welling, Kent.

215 1909. Jones, Staff-Surgeon Kenneth Hurlstone, M.B., Ch.B., F.Z.S., R.N.; The Manor House, St. Stephen's, Canterbury, Kent.

1899. Jourdain, The Rev. Francis Charles Robert, M.A.; Clifton Vicarage, near Ashburne, Derbyshire.

1902. Joy, Norman Humbert, M.R.C.S., L.R.C.P.; Thurlestone, Bradfield, near Reading, Berks.

1880. Kelham, Col. Henry Robert, C.B. (late Highland Light Infantry); Army and Navy Club, Pall Mall, S.W.

1894. Kelsall, Major Harry Joseph, R.A.; c/o J. W. Jameson, Esq., Langham Lea, Bowdon, Cheshire.

220 1897. Kelsall, The Rev. John Edward, M.A.; Milton Rectory, New Milton, Hants.

1904. Kelso, John Edward Harry, M.D.; Holmwood, Hayling Island, Hants.

1891. Kerr, John Graham, F.R.S., F.Z.S., Regius Professor of Zoology, 9 The University, Glasgow.

1895. Kingsford, William Edward; Cairo, Egypt.

1902. Kinnear, Norman Boyd; Bombay Natural History Society, 6 Apollo Street, Bombay, India.

225 1910. Kloss, Cecil Boden, F.Z.S., F.R.A.I.; c/o Mrs. E. A. Kloss, c/o National Bank, Harlesden, N.W.

1882. Knubley, The Rev. Edward Ponsonby, M.A.; Steeple Ashton Vicarage, Trowbridge, Wilts.

1900. Koenig, Dr. Alexander Ferdinand; Coblenzer-Strasse 164, Bonn, Germany.

1906. Kollibay, Paul; Ring 121, Neisse, Germany.

1892. Laidlaw, Thomas Geddes; Bank of Scotland, Duns, N.B.

230 1884. Langton, Herbert; St. Moritz, 61 Dyke Road, Brighton, Sussex.

1881. Lascelles, The Hon. Gerald William, F.Z.S.; The King's House, Lyndhurst, Hants.

1892. La Touche, John David Digues, C.M.Z.S.; c/o Custom House, Chinwangtao, North China (*viâ* Siberia).

1910. Lees, T. O. Hastings, M.A., F.Z.S.; 4 Osnaburgh Terrace, Regent's Park, N.W.

1905. Legge, The Hon. Gerald; c/o Messrs. Hoare, 37 Fleet Street, E.C.

235 1906. Leigh, John Hamilton, F.Z.S.; Culloden House, Inverness-shire.

Date of Election.

1898. Le Souëf, Dudley, C.M.Z.S.; Director of the Zoological Gardens, Melbourne, Victoria, Australia.

1868. Le Strange, Hamon, F.Z.S.; Hunstanton Hall, King's Lynn, Norfolk; and 1 Eaton Place, Eaton Square, S.W.

1889. Leyland, Christopher John, F.Z.S.; Haggerston Castle, Beal, Northumberland.

1897. Lilford, John, Lord, F.Z.S.; Lilford Hall, Oundle, Northants.

240 1909. Lings, George Herbert; Barcicroft, Burnage, Didsbury, Manchester.

1897. Lodge, George Edward, F.Z.S.; The Studios, 5 Thurloe Square, S.W.

1903. Long, Sydney Herbert, M.D.; 37 St. Giles Street, Norwich, Norfolk.

1904. Lowe, Dr. Percy R., B.A., M.B.; c/o Sir Frederic Johnstone, Bt., The Hatch, Windsor, Berks.

1902. Lucas, The Right Hon. Auberon Thomas, Lord, P.C., F.Z.S.; 33 Grosvenor Road, Pimlico, S.W.

245 1904. Lynes, Captain Hubert, R.N.; Garthmeilio, Corwen, North Wales.

1900. McConnell, Frederick Vavasour; Camfield Place, Hatfield, Herts.

1905. McGregor, Peter James Colquhoun; H.M. Consul, British Consulate, Jerusalem, Palestine, Turkey-in-Asia.

1897. McLean, John Chambers; Te Karaka, Gisborne, New Zealand.

1899. Macmillan, George Augustin, F.Z.S.; 27 Queen's Gate Gardens, S.W.

250 1906. Macmillan, William Edward Frank; 27 Queen's Gate Gardens, S.W.

1909. Macnaghten, Norman Donnelly; Ministry of the Interior, Cairo, Egypt.

1894. Macpherson, Arthur Holte, F.Z.S.; 21 Campden Hill Square, Kensington, W.

1906. Magrath, Major Henry Augustus Frederick; c/o Messrs. H. S. King & Co., 9 Pall Mall, S.W.

1907. Mann, Thomas Hugh, F.Z.S.; Trulls Hatch, Rotherfield, Sussex.

255 1908. Maples, Stuart; Lytton House, Stevenage, Herts.

1904. Mapleton, Harvey William, B.A.; Weare, Axbridge, Somerset.

Date of
Election.

1894. Marshall, Archibald McLean, F.Z.S.; Great Chitcombe, Brede, Sussex.

1894. Marshall, James McLean, F.Z.S.: Bleaton Hallet, Blairgowrie, Perthshire, N.B.

1897. Mason, Col. Edward Snow; 10 Lindum Terrace, Lincoln.

260 1898. Massey, Herbert; Ivy Lea, Burnage, Didsbury, Manchester.

1907. Mathews, Gregory Macalister, F.L.S., F.Z.S.; Langley Mount, Watford, Herts.

1908. Mathews, Richard Owen; Langley Mount, Watford.

1896. Maxwell, The Rt. Hon. Sir Herbert Eustace, Bt., P.C., F.R.S.; Monreith, Whauphill, Wigtownshire, N.B.

1883. Meade-Waldo, Edmund Gustavus Bloomfield, F.Z.S.; Stonewall Park, Edenbridge, Kent.

265 1912. Meiklejohn, Capt. Ronald Forbes, D.S.O. (Royal Warwickshire Regt.); 14 Murrayfield Road, Midlothian, N.B.

1899. Meinertzhagen, Capt. Richard, F.Z.S. (Royal Fusiliers); c/o Messrs. Cox & Co., 16 Charing Cross, S.W.

1886. Millais, John Guille, F.Z.S.; Compton's Brow, Horsham, Sussex.

1903. Mills, The Rev. Henry Holroyd, M.A., F.Z.S.; The Rectory, St. Stephen-in-Brannel, Grampound Road, Cornwall.

1879. Mitchell, Frederick Shaw; Hornshaws, Millstream, Vancouver Island, British Columbia.

270 1901. Mitchell, P. Chalmers, M.A., D.Sc., LL.D., F.R.S., F.L.S., F.Z.S.; Secretary to the Zoological Society of London, Regent's Park, N.W.

1898. Monro, Horace Cecil, C.B.; Queen Anne's Mansions, Queen Anne's Gate, S.W.

1912. Mouritz, L. Beresford; P.O. Box 662, Bulawayo, Rhodesia, South Africa.

1886. Muirhead, George, F.R.S.E.; Speybank, Fochabers, Morayshire.

1893. Mullens, Major William Herbert, M.A., LL.M., F.Z.S.; Westfield Place, Battle, Sussex.

275 1892. Munn, Philip Winchester, F.Z.S.; Laverstoke, Whitchurch, Hants.

1897. Munt, Henry, F.Z.S.; 10 Ashburn Place, South Kensington, S.W.

1911. Murray, Edward Mackenzie; Woodside, Coupar-Angus, Perthshire.

Date of Election.

1910. MURRAY, HERBERT WILLAUME, F.Z.S.; The Old House, Epsom, Surrey.

1900. MUSTERS, JOHN PATRICIUS CHAWORTH, D.L., J.P.; Annesley Park, Nottingham.

280 1907. NEAVE, SHEFFIELD AIREY, M.A., B.Sc. F.Z.S.; Mill Green Park, Ingatestone, Essex.

1882. NELSON, THOMAS HUDSON; Seafield, Redcar, Yorkshire.

1895. NESHAM, ROBERT, F.Z.S., F.E.S.; Utrecht House, Queen's Road, Clapham Park, S.W.

1904. NEWMAN, THOMAS HENRY, F.Z.S.; Newlands, Harrowdene Road, Wembley, Middlesex.

1902. NICHOLS, JOHN BRUCE, F.Z.S.; Parliament Mansions, Victoria Street, S.W.

285 1900. NICHOLS, WALTER BUCHANAN; Stour Lodge, Bradfield, Manningtree, Essex.

1876. NICHOLSON, FRANCIS, F.Z.S.; The Knoll, Windermere, Westmoreland.

1902. NICOLL, MICHAEL JOHN, F.Z.S.; Valhalla House, Zoological Gardens, Giza, Egypt.

1904. NOAKES, Wickham; Selsdon Park, Croydon, Surrey.

1892. OGILVIE, FERGUS MENTEITH, M.A., F.Z.S.; The Shrubbery, 72 Woodstock Road, Oxford.

290 1890. OGILVIE-GRANT, WILLIAM ROBERT, F.Z.S.; British Museum (Natural History), Cromwell Road, S.W.

1889. OGLE, BERTRAM SAVILE; Hill House, Steeple Aston, Oxford.

1907. OLDHAM, CHARLES, F.Z.S.; Kelvin, Boxwell Road, Berkhamsted, Herts.

1906. OSMASTON, BERTRAM BERESFORD (Imperial Forest Service); Naini Tal, India.

1883. PARKER, HENRY, C.E.; Heather Dene, Esplanade, Grange-over-Sands, Lancs.

295 1880. PARKIN, THOMAS, M.A., F.L.S., F.Z.S.; Fairseat, High Wickham, Hastings, Sussex.

1908. PATON, EDWARD RICHMOND, F.Z.S.; Brookdale, Grassendale, near Liverpool, Lancs.

1891. PATTERSON, ROBERT, F.L.S., M.R.I.A.; Glenbank, Holywood, Co. Down, Ireland.

1911. PATTERSON, WILLIAM HARRY; 25 Queen's Gate Gardens, S.W.

1911. PEARSE, THEED; Central Park, British Columbia; and Mentmore, Ampthill Road, Bedford.

Date of Election.

300 1894. Pearson, Charles Edward, F.L.S.; Hillcrest, Lowdham, Notts.

1891. Pearson, Henry J., F.Z.S.; Bramcote, Notts.

1902. Pease, Sir Alfred Edward, Bt., F.Z.S.; Pinchinthorpe House, Guisborough, Yorkshire; and Brooks's Club, St. James's Street, S.W.

1898. Penn, Eric Frank; 42 Gloucester Square, W.

1891. Penrose, Francis George, M.D., F.Z.S.; c/o Mr. E. A. Porter, 7 Princes Street, Cavendish Square, W.

305 1900. Percival, Arthur Blayney, F.Z.S.; Game-Ranger, Nairobi, British East Africa Protectorate.

1912. Pershouse, Capt. Stanley (1st Border Regt.); No. 5 Bungalow, B 1 Lines, Maymyo, Upper Burma; and Passfield House, Liphook, Hants.

1886. Phillips, Ethelbert Lort, F.Z.S.; 79 Cadogan Square, S.W.

1893. Pigott, Sir Thomas Digby, K.C.B.; The Lodge, Lower Sheringham, Norfolk.

1908. Player, W. J. Percy; The Quarr, Clydach, R.S.O., Glamorganshire.

310 1907. Pocock, Reginald Innes, F.R.S., F.L.S., F.Z.S.; Superintendent of the Zoological Gardens, Regent's Park, N.W.

1905. Pollard, Capt. Arthur Erskine St. Vincent (The Border Regiment); Haynford Hall, Norwich, Norfolk.

1896. Popham, Hugh Leyborne, M.A.; Hunstrete House, Pensford, near Bristol, Gloucestershire.

1898. Price, Athelstan Elder, F.Z.S.; 4 Mincing Lane, E.C.

1903. Proctor, Major Frederick William (late West Riding Regt.); Downfield, Maidenhead, Berks.

315 1901. Proud, John T.; Dellwood, Bishop Auckland, Durham.

1893. Pycraft, William Plane, F.Z.S.; British Museum (Natural History), Cromwell Road, S.W.

1903. Ralfe, Pilcher George; The Parade, Castletown, Isle of Man.

1903. Ratcliff, Frederick Rowlinson; 24 Lancaster Gate, W.

1879. Rawson, Herbert Evelyn; Comyn Hill, Ilfracombe, N. Devon.

320 1894. Read, Richard Henry, M.R.C.S., L.R.C.P.; Church Street, Hanley, Staffordshire.

1888. Read, Robert H.; 8*a* South Parade, Bedford Park, W.

1877. Reid, Capt. Philip Savile Grey (late R.E.); The Elms, Yalding, Maidstone, Kent.

Date of Election.

1903. Renaut, William E.; 192 Belsize Road, Hampstead, N.W.

1908. Richardson, Norman Frederic; Lynndale, Manor Road, Forest Hill, S.E.

325 1907. Richmond, Herbert William; King's College, Cbamridge.

1895. Rickett, Charles Boughey, F.Z.S.; 13 St. Paul's Road, Clifton, Bristol, Gloucestershire.

1896. Rippon, Lt.-Col. George, F.Z.S.; 89th Punjabis, P.O. Kalaw, Southern Shan States, Upper Burma.

1907. Ritchie, Archibald Thomas Ayres; Magdalen College, Oxford; and Overstrand, near Cromer, Norfolk.

1902. Rivière, Bernard Beryl, F.R.C S.; St. Giles's Plain, Norwich, Norfolk.

330 1898. Robinson, Herbert C., C.M.Z.S.; Selangor State Museum, Kuala Lumpur, Federated Malay States.

1912. Robinson, Herbert William; Patchetts, Caton, near Lancaster.

1896. Rogers, Lt.-Col. John Middleton, D.S.O., F.Z.S. (late 1st Dragoons); Riverhill, Sevenoaks, Kent.

1893. Rothschild, The Hon. Lionel Walter, D.Sc., Ph.D., F.Z.S.; The Zoological Museum, Tring, Herts.

1894. Rothschild, The Hon. Nathaniel Charles, M.A., F.Z.S.; Arundel House, Kensington Palace Gardens, W.

335 1910. Rücker, Sir Arthur William, M.A., D.Sc., LL.D., F.R.S.; Everington House, Newbury, Berks.

1907. Russell, Conrad George Edward, F.Z.S.; 2 Audley Square, W.

1910. Russell, Harold, F.Z.S.; 16 Beaufort Gardens, Chelsea, S.W.

1883. St. Quintin, William Herbert, F.Z.S.; Scampston Hall, Rillington, Yorkshire.

1903. Sandeman, Capt. Robert Preston (late 10th Hussars); Dan-y Parc, Crickhowell, Breconshire.

340 1889. Sapsworth, Arnold Duer, F.Z.S.; National Liberal Club, Whitehall Place, S.W.

1902. Sargeaunt, Arthur St. George; Exbury, Padstow, Cornwall.

1904. Sargent, James; 76 Jermyn Street, S.W.

1902. Saunders, William Henry Radcliffe, C.E., F.Z.S.; Wilverley, Torquay, S. Devon.

Date of Election.

1909. Savage, The Rev. Ernest Urmson; 129 Upper Canning Street, Liverpool, Lancs.

345 1907. Schwann, Geoffrey; 4 Prince's Gardens, S.W.

1905. Schwann, Harold, F.Z.S.; 45 Brompton Square, S.W.

* 1858. Sclater, Philip Lutley, D.Sc., F.R.S., F.Z.S.; Odiham Priory, Winchfield, Hants; and Athenæum Club, Pall Mall, S.W. *(Joint Editor.)* *(Gold Medallist.)*

1891. Sclater, William Lutley, M.A., F.Z.S.; 10 Sloane Court, Chelsea, S.W.

1907. Scott, The Rev. Canon Samuel Gilbert, M.A.; The Rectory, Havant, Hants.

350 1899. Selous, Frederick Courteney, F.Z.S.; Heatherside, Worplesdon, Surrey.

1889. Senhouse, Humphrey Patricius, B.A.; The Fitz, Cockermouth, Cumberland.

1908. Seppings, Capt. John William Hamilton; Army Pay Office, Bootham, York.

1899. Serle, The Rev. William, M.A., B.D.; The Manse, Duddingston, Edinburgh.

1901. Seth-Smith, David, F.Z.S.; 34 Elsworthy Road, South Hampstead, N.W.

355 1904. Seth-Smith, Leslie Moffat, B.A., F.Z.S.; Alleyne, Caterham Valley, Surrey.

1909. Seton, Malcolm Cotter Cariston; 13 Clarendon Road, Holland Park, W.; and Union Club, Trafalgar Square, S.W.

1899. Sharman, Frederic, F.Z.S.; 47 Goldington Road, Bedford.

1865. Shepherd, The Rev. Charles William, M.A., F.Z.S.; Trottiscliffe Rectory, Maidstone, Kent.

1908. Smalley, Frederic William, F.Z.S.; Challan Hall, Silverdale, near Carnforth, Lancs.

360 1906. Snouckaert van Schauburg, Baron René Charles; Doorn, Holland.

1903. Sparrow, Major Richard, F.Z.S. (7th Dragoon Guards); Rookwoods, Sible Hedingham, Essex; and Trimulgerry, Secunderabad, India.

1906. Stanford, Staff-Surgeon Charles Edward Cortis, B.Sc., M.B., R.N.; H.M.S. 'Sirius,' c/o G.P.O.

1910. Stanford, Edward Fraser; 9 Cumberland House, Kensington Court, W.

Date of
Election.

1893. Stanley, Samuel S.; 17 Newbold Street, Leamington, Warwickshire.

365 1900. Stares, John William Chester; Portchester, Hants.

1902. Stenhouse, John Hutton, M.B., R.N.; H.M.S. 'Queen,' 2nd Fleet.

1910. Stevens, Herbert; Fairfield Road, Morecambe, Lancs.

1906. Steward, Edward Simmons, F.R.C.S.; 10 Prince's Square, Harrogate, Yorks.

1893. Stonham, Charles, C.M.G., F.R.C.S., F.Z.S.; 4 Harley Street, Cavendish Square, W.

370 1881. Studdy, Col. Robert Wright (late Manchester Regiment); Waddeton Court, Brixham, Devon.

1887. Styan, Frederick William, F.Z.S.; Stone Street, near Sevenoaks, Kent.

1887. Swinburne, John; Haenertsburg, Transvaal, South Africa.

1882. Swinhoe, Col. Charles, M.A., F.L.S., F.Z.S.; 6 Gunterstone Road, W. Kensington, W.

1881. Tait, William Chaster, C.M.Z.S.; Entre Quintas 155, Oporto, Portugal.

375 1911. Talbot-Ponsonby, Charles George; 5 Crown Office Row, Temple, E.C.

1911. Tatton, Reginald Arthur; Cuerden Hall, Bamber Bridge, Preston, Lancs.

1905. Taylor, Lionel Edward, F.Z.S.; Bankhead, Kelowna, British Columbia.

1909. Tenison, Lieut. William Percival Cosnahan (62nd Battery, R.F.A.); c/o Messrs. Cox & Co., 16 Charing Cross, S.W.

1886. Terry, Major Horace A. (late Oxfordshire Light Infantry); The Lodge, Upper Halliford, Shepperton, Middlesex.

380 1911. Thomson, A. Landsborough, M.A.; Castleton House, Old Aberdeen, Aberdeen.

1904. Thompson, William R. (Lieut. R.G.A.); 'Ravello,' Carlton Road, Weymouth, Dorset.

1909. Thorburn, Archibald, F.Z.S.; High Leybourne, Hascombe, near Godalming, Surrey.

1893. Thorpe, Dixon L.; Loshville, Etterby Scaur, Carlisle, Cumberland.

1903. Ticehurst, Claud Buchanan, M.A., M.D., M.R.C.S.; Grove House, Lowestoft, Suffolk.

Date of Election.

385 1894. Ticehurst, Norman Frederic, M.A., M.B., F.R.C.S., F.Z.S.; 35 Pevensey Road, St. Leonards-on-Sea, Sussex.

1902. Townsend, Reginald Gilliat, M.A.; Buckholt, Dean, Salisbury, Wilts.

1893. Trevor-Battye, Aubyn, F.Z.S.; Ashford Chace, Petersfield, Hants.; and Royal Societies Club, St. James's Street, S.W.

1911. Tyrwhitt-Drake, Hugh Garrard, F.Z.S.; Cobtree, Sandling, Maidstone, Kent.

1864. Upcher, Henry Morris, F.Z.S.; Sheringham Hall, Cromer, Norfolk.

390 1894. Ussher, Richard John, M.R.I.A.; Cappagh House, Cappagh, S.O., Co. Waterford, Ireland.

1907. Van Oort, Dr. Eduard Daniel; Museum of Natural History, Leyden, Holland.

1910. Van Someren, Dr. Robert Abraham Logan; Kampala, Uganda, British East Africa.

1912. Van Someren, Dr. Victor Gurney Logan; Uganda Medical Staff, c/o Post Office, Nairobi, British East Africa.

1908. Vaughan, Matthew; Frostleigh, Grendon Road, Exeter.

395 1906. Vaughan, Lieut. Robert E., R.N.; Lion Commercial Hotel, Portsmouth.

1890. Venour, Stephen; Fern Bank, Altrincham, Cheshire.

1884. Verey, Alfred Sainsbury; Heronsgate, near Rickmansworth, Herts.

1881. Verner, Col. William Willoughby Cole (late Rifle Brigade); Hartford Bridge, Winchfield, Hants; and United Service Club, S.W.

1902. Wade, Edward Walter; Middelburg, North Ferriby, East Yorks.

400 1886. Wade-Dalton, Col. H. D.; Hauxwell Hall, Finghall, R.S.O., Yorkshire.

1895. Wallis, Henry Marriage; Ashton Lodge, Christchurch Road, Reading, Berks.

1881. Walsingham, Thomas, Lord, M.A., LL.D., F.R.S., F.Z.S.; Merton Hall, Thetford, Norfolk.

1899. Walton, Major Herbert James, M.D., F.R.C.S., C.M.Z.S., I.M.S.; Saharanpur, United Provinces, India; and c/o Messrs. King, King & Co., P.O. Box 110, Bombay, India.

Date of Election.

1872. Wardlaw-Ramsay, Lt.-Col. Robert George, F.Z.S.; Whitehill, Rosewell, Midlothian, N.B.

405 1896. Watkins, Watkin, F.Z.S.; 33 Evelyn Gardens, S.W.; and Wellington Club, S.W.

1903. Watt, Hugh Boyd; 3 Willow Mansions, West Hampstead, N.W.

1912. Wells, Charles Henry; 58 Broadfield Road, Hither Green, Kent.

1912. Wenner, Max Victor: The Gables, Alderley Edge, Cheshire.

1900. Westell, William Percival, D.Sc., F.L.S., F.R.H.S.; Verulam, Icknield Way, Letchworth, Herts.

410 1891. Whitaker, Benjamin Ingham; Hesley Hall, Tickhill, Rotherham, Yorks.

1891. Whitaker, Joseph I. S., F.Z.S.; Malfitano, Palermo, Sicily.

1909. White, Henry Luke; Belltrees, Scone, New South Wales, Australia.

1912. White, Capt. Samuel Albert; Wetunga, Fulham, South Australia.

1903. White, Stephen Joseph, F.Z.S.; Oakwood, Crayford, Kent.

415 1903. Whitehead, Capt. Charles Hugh Tempest: Deighton Grove, York; and 56th Rifles F.F., Kohat, India.

1887. Whitehead, Jeffery, ; Mayes, East Grinstead, Sussex.

1897. Whymper, Charles, F.Z.S.; 11 Orange Street, Haymarket, S.W.

1912. Whymper, Samuel Leigh; Oriental Club, Hanover Square, W.

1898. Wiglesworth, Joseph, M.D., F.R.C.P.; Rainhill, near Liverpool, Lancs.

420 1894. Wilkinson, Johnson: St. George's Square, Huddersfield, Yorkshire.

1912. Wilkinson, William Arthur, F.Z.S.; Dumcrieff, Tudor Hill, Sutton Coldfield, Warwickshire.

1897. Wilson, Allan Read, B.A., M.B., B.Ch.; Edgewood, Lower Arrow Lake, British Columbia.

1888. Wilson, Charles Joseph, F.Z.S.; 34 York Terrace, Regent's Park, N.W.

1900. Wilson, Dr. Edward Adrian, F.Z.S.; SS. "Terra Nova," Christchurch, Lyttleton, New Zealand; and Westal, Cheltenham, Gloucestershire.

425 1887. Wilson, Scott Barchard, F.Z.S.: Heatherbank, Weybridge Heath, Surrey.

Date of Election.

1897. Witherby, Harry Forbes, F.Z.S.; 3 Cannon Place, Hampstead, N.W.

1908. Witherington, Gwynne; Aberlash, Sonning, Berks.

1899. Wollaston, Alexander Frederick Richmond, B.A.; Douglas Mansions, Cromwell Road, S.W.

1912. Wood, Martin Stanley, M.D.; Cheadle Royal, Cheadle, Cheshire.

430 1912. Woodhouse, Cecil, M.D.; Buckland House, Esher, Surrey.

1909. Woosnam, Richard Bowen, C.M.Z.S.; Game Warden's Office, Nairobi, British East Africa.

1902. Workman, William Hughes; Lismore, Windsor, Belfast, Ireland.

1912. Wormald, Hugh; Heathfield, Dereham, Norfolk.

1904. Wright, William Crawford; Roslyn, Marlborough Park, N., Belfast, Ireland.

435 1895. Yerbury, Lt.-Col. John William (late R.A.), F.Z.S.; 2 Ryder Street, St. James's, S.W.; and Army and Navy Club, S.W.

1889. Young, Capt. James B., R.N.; Tytherley, Wimborne, Dorset.

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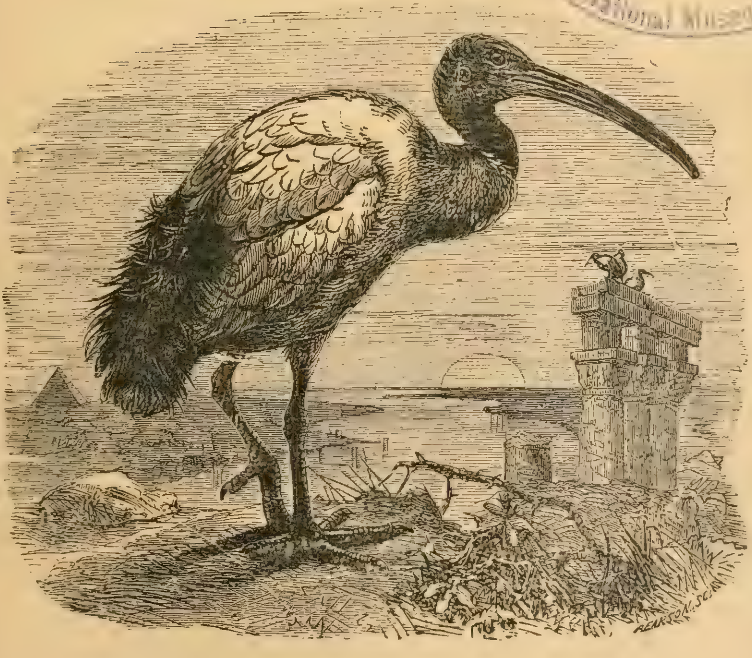

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Publications received since the issue of No. 20, Ninth Series, and not noticed in the present Number.

1. Abbott, C. G. The Home-Life of the Osprey. (London, 1911.)
2. 'Annals of Scottish Natural History.' (No. 80. 1911.)
3. 'Annals of the Queensland Museum.' (No. 10. Brisbane, 1911.)
4. Balducci, E. La nuova cattura in Italia di un *Pelecanus crispus* Bruch. (Revista Ital. di Orn. 1911.)
5. Beebe, C. W. A Contribution to the Ecology of the adult Hoatzin. (Smithsonian Report for 1910. Washington, 1911.)
6. 'Bird Notes.' Journal of the Foreign Bird Club. (Vol. ii. Nos. 10–12. 1911.)
7. Bonhote, J. L., and Smalley, F. W. On Colour and Colour-pattern Inheritance in Pigeons. (P. Z. S. 1911.)
8. 'British Birds.' (Vol. v. Nos. 6, 7, 8. 1911–1912.)
9. Club van Nederlandsche Vogelkundiger Jaarbericht. (No. 1. Deventer, 1911.)
10. 'The Condor.' (Vol. xiii. No. 6. 1911.)
11. Fleming, J. H. A new Teal from the Andaman Islands. (Proc. Biol. Soc. Wash. vol. xxiv. 1911.)
12. Gladstone, H. S. Additions and Corrigenda to the 'Birds of Dumfriesshire.' (Dumfries, 1911.)
13. Hall, Robert. The Feather Tracts of *Sphenura broadbenti*, McCoy. (Proc. R. Soc. Tasmania, 1911.)
14. Jourdain, F. C. R. The Bird Life of Corsica. (Bericht Int. V. Orn.-Kong. Berlin, 1910.)
15. Koenig, A. Die Ergebnisse meiner Reise nach dem Sudan in Frühjahr, 1910. (Bericht V. Int. Orn.-Kong. Berlin, 1910.)
16. 'Journal of the South African Ornithologists' Union.' (Vol. vii. No. 2. Pretoria, 1911.)
17. Kellog, Louise. A Collection of Winter Birds from Trinity and Shasta Counties, California. ('Condor,' vol. xiii. 1911.)
18. Koch, Oscar. Übersicht über die Vögel Estlands. (Leipzig, 1911.)
19. Massachusetts Board of Agriculture. Annual Report of the State Ornithologist for the year 1910. (Boston, 1911.)
20. 'Messager Ornithologique.' (Nos. 3, 4. Moscow, 1911.)
21. New South Wales Gould League of Bird Lovers. 'Bird Life' Supplement to the 'Public Instruction Gazette,' 30th September, 1911. (Sydney, 1911.)
22. New York Zool. Soc. Bulletin. (1911–12. Nos. 48, 49.)
23. North, A. J. Nests and Eggs of Birds found breeding in Australia and Tasmania. (Vol. iii. Pt. iii. Sydney, 1911.)
24. 'Oologia Neerlandica.' (Part i. 1911).
25. Reiser, Otmar. Über die schwarz-weissen Steinschmätzer der Balkanhalbinsel. (Bericht V. Int. Orn.-Kong. Berlin, 1910.)
26. Report on the Immigrations of Summer Residents in the Spring of 1910. (Bull. B. O. C. xxviii. August 1911.)
27. 'Rivista Italiana di Ornitologia.' (Anno i. Num. 1–2. Bologna, 1911.)
28. 'The Scottish Naturalist.' (No. 1. 1912.)
29. Swarth, H. S. Description of a new Hairy Woodpecker from S.E. Alaska. (Univ. Calif. Publns. Zool. vol. vii. No. 9. 1911.)
30. Todd, W. E. C., and Worthington, W. W. A Contribution to the Ornithology of the Bahama Islands. (Annals Carnegie Mus. vol. vii. 1911.)
31. U.S. Department of Agriculture. Directory of Officials, &c. for the protection of Birds and Game, 1911. Game Laws for 1911. (Washington, 1911.)
32. Van Oort, E. D. On some new or rare Birds from Sumatra, Java, &c.; On the Catalogue of the Collection of Birds brought together by A. Vroeg; Bird-marking in the Netherlands, and other pamphlets. (Notes from Leyden Mus. vol. xxxiv. 1911.)
33. Wood, Lt.-Col. W. Animal Sanctuaries in Labrador. (Ottawa, 1911.)
34. Wright, A. H. Other early Records of the Passenger Pigeon. ('Auk,' xxviii. Nos. 3 & 4. 1911.)
35. Zoological Society of Scotland: Second Annual Report. (May, 1911.)
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1885,	,, 3.	1896,	,, 2, 3, 4.
1886,	,, 2, 3, 4.	1897,	,, 1, 2, 4.
1887,	,, 1, 3, 4.	1898,	,, 2, 3, 4.
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[Concluded from Vol. v. p. 741.]

(Plate I.)

The numbers in front of the names of the Birds are those of the 'Check-list of South-African Birds,' published by me in 1905 (Ann. S. Afr. Mus. iii. pp. 303–387), which is founded upon the four volumes of the 'Birds of South Africa' by myself and the late Dr. Stark.

In order to save space the following contractions are used:—

CC. = Cape Colony.
Tv. = Transvaal.
N. = Natal.
P. = Portuguese East Africa.
Z. = Zululand.—W. L. S.

491. Strix flammea.

Strix flammea maculata Brehm; Reichenow, Vög. Afr. i. p. 676.

CC. Durban Rd., Mch., Sept. (3): **Z.** Sibudeni, Oct. (1); Umfolosi Station, June (1); **Tv.** Turflop, Mch. (1).

["Mabengwane" of the Zulus.

The Barn-Owl has been noted from the Cape Peninsula,

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* For previous parts see 'The Ibis,' 1911, pp. 208–316, 405–437, and 695–741; and map of localities, 'The Ibis,' 1911, p. 213.

Umfolosi Station in Zululand, Legogot and Pietersburg, in the Transvaal, and from the Inhambane, Beira, Gorongoza, and Tete districts of Portuguese East Africa. In habits and cry it is similar to its congener in Europe, as also in being commonly found round habitations and homesteads. It appears first at sundown, spending the day in the woods and plantations and often in outbuildings. This bird, I believe, often meets its death by falling down chimneys; and in the boilers of a deserted mine in the low country of the Transvaal, I found the bones and feathers of several that had fallen down the chimneys and were unable to get back. Judging by the pellets, it feeds principally on mice.

The soft parts of an adult are:—Irides dark hazel; bill pale yellow; toes yellowish.]

492. Strix capensis.

Z. Umfolosi Station, June (1); **P.** Beira, Nov. (1).

["Sesisi" of the Ntebis.

On only two occasions have I come across this Owl: once at Umfolosi Station in Zululand, when the specimen secured was flushed in long grass on a hillside dotted with small trees; and again in the Beira district, when another was flushed from the long grass in a vlei, where I was looking for reed-buck. On examining the place from which it rose, I found that it had made quite a comfortable "form" for itself, and there were a few feathers lying about, shewing that the bird had been preening itself.

The soft parts are:—Irides dark brown; bill whitish horn-coloured, slightly yellow at the base; toes dirty yellow.]

493. Asio capensis.

Z. Umfolosi Station, June, July, Aug., Sept. (10); Umzinele River, Aug. (1); **Tv.** Wakkerstroom, Mch. (1); Klein Letaba, July (1); Pietersburg, Mch. (2); Turflop, Mch. (1).

I cannot accept Reichenow's identification of Levaillant's "Choucouhou" with this species. The plate (Ois. d'Afr. i. pl. 39) is almost unrecognisable, but the description certainly seems to me to refer to *Bubo maculosus*. Levaillant specially mentions the "plaque blanc" on the chest and the white "variegations" of the back, both of which quite exclude the present species. I therefore prefer to use Smith's name rather than "*nisuella*" of Daudin founded on Levaillant's plate, as proposed by Reichenow.

[Noted from Zululand, the Transvaal, and from the Inhambane and Beira districts of Portuguese East Africa. In most localities it was found very plentifully, especially in Zululand and the Transvaal. It frequents the long grass in the vleis and valleys, whence it can easily be flushed. I have shot it in the daytime. It leaves its roosting-place just at sundown, the flight being somewhat erratic and often in wide circles. I am told that it breeds in the vleis, but I never succeeded in proving this.

The soft parts are :—

♂. Irides rich brown; bill dark horn-coloured.

♀. Irides dark brown; bill dark horn-coloured.]

495. Syrnium woodfordi.

N. Illovo, Nov. (♂ and 2 pull.); **Z.** Sibudeni, Nov. (1); **Tv.** Woodbush Hills, Nov. (2 juv.).

Two quite young birds with the wing-quills just beginning to grow have almost lost their first down, and are covered above and below with whitish feathers transversely and narrowly banded with fulvous brown; the other pair taken in the Woodbush are larger and very similarly marked.

["Mabangwani" of the Zulus.

Zululand, Natal, and the Transvaal are the only localities in which I have observed this Owl. It is essentially a forest species, and is by no means easy to obtain, usually frequenting the denser bush on the banks of the streams.

The soft parts of an adult are :—Irides hazel; bill dark naples-yellow.]

496. Bubo capensis.

Tv. Zuurbron, May (1).

["Tsidsi" of the Gorongozas.

The Eagle-Owl was fairly plentiful in the woods and krantzes at Zuurbron, but was seldom seen: I also met with it at Eshowe in Zululand and heard its deep resonant hoot in the forests at Gorongoza, but did not see one. It is very much a bird of the woods and forests, and consequently cannot easily be obtained. I have not succeeded in finding the nest.

The soft parts of an adult are:—Irides rich yellow; bill dull black.]

497. Bubo maculosus.

CC. Klipfontein, June (1); Durban Rd., Mch., Sept. (2); **Z.** Ngoye Hills, Sept., Oct. (1 & 3 juv.); **Tv.** Woodbush, May, June (2); Legogot, Apl. (1); **P.** Coguno, July (1).

The birds from the Cape and Zululand are strongly washed with rufous below, while those from the Transvaal and Coguno have the ground-colour pure white without rufous. These two phases are probably of some geographical significance.

The young birds from the Ngoye Hills are much more extensively marked with narrow transverse bands both above and below than are the adults.

[This species is widely spread, and was found in most localities visited, notably Namaqualand, the Cape Peninsula, Zululand, the Transvaal, and in the Inhambane, Beira, and Tete districts of Portuguese East Africa. It usually occurs in pairs, and rests throughout the day amongst the bushes and rocks on the mountains and kopjes, often sitting on the ground, while in country devoid of mountains it roosts concealed in the thick foliage of the larger trees. At night it is seen either sitting on some prominent rock or bare tree or post, uttering at intervals its melancholy hoot, or slowly hawking backwards and forwards within a few feet of the ground. I have not succeeded in finding the nest, but young birds were taken in Zululand, in the forest on the Ngoye Hills, in September and October.

The soft parts of an adult and a young bird are:—Irides yellow; bill dull black.]

499. Scops capensis.

C. Grant, Bull. B. O. C. xxi. 1908, p. 66.

Tv. Klein Letaba, Aug. (1); **P.** Beira, Dec. (1).

The example from Klein Letaba is in the typical grey phase, the one from Beira is in the rufous phase, which in this species is very rare. There is no example in the British Museum resembling it. The whole of the back is suffused with rufous except a broad band above and in front of the eye, the ground-colour of which remains almost white; the black markings are far less strongly marked; below, the rufous is fainter and the black streaks are much more feeble; the leg-feathering is white and unspotted. The rufous bird is also slightly smaller than the grey, the wing measuring 127 mm. against 136, though both are sexed as females.

[Only on the two occasions that I have secured specimens have I come across this little Owl. The one from the Klein Letaba was shot from a small tree situated in a dry river-course, and that from Beira was put up on the side of an ant-heap in bamboos and was sitting on the ground. Neither of these uttered a sound, and both were remarkably tame.

The soft parts are:—Irides bright yellow; bill dark horn-coloured; toes slaty.

In the specimens from Beira the soft parts were considerably paler in colour; which is in keeping with the plumage.]

500. GLAUCIDIUM PERLATUM.

Tv. Klein Letaba, Sept. (1).

[The occasion on which I secured the specimen was the only time I saw this little Owl; it was shot in the daytime in a small tree in a dry water-course, and was solitary.

The soft parts were:—Irides clear yellow; bill greenish yellow; toes dirty yellowish, nails pale horn-coloured, tips blackish.]

501. GLAUCIDIUM CAPENSE.

P. Coguno, July, Aug. (2); **Z.** Beira, Jan. (1).

[Only in the Portuguese country did I find this Owl. In the Inhambane district it was not common, but around Beira several pairs were seen and many heard calling at night. One pair was seen near Tete. This species is always observed in pairs, and is often flushed in the daytime from the thick foliage of the densest parts in the patches of forest or dense clumps of bush. It is by no means wild, but owing to its frequenting dense places it is very often impossible to detect it. The call is "kroo-kroo," low and penetrating, and is heard just after sundown and throughout the night. When flushed in the daytime it does not call.

The soft parts are :—

♂. Irides yellow; bill pale yellow.

♀. Irides yellow; bill greenish yellow.]

504. Falco biarmicus.

CC. Klipfontein, May (1).

[Since the Central Cape Colony trip I have only observed this Falcon in Namaqualand, the Cape Peninsula, Zululand, and the South-Eastern Transvaal. It is generally observed in pairs, and in habits much resembles the European Peregrine.

The soft parts of an adult are :—Irides dark brown; cere and round eye lemon-yellow; bill light slaty at base, dark at tip; legs and toes lemon-yellow.]

508. Cerchneis rupicola.

CC. Klipfontein, July (2); Plettenberg Bay, Feb., Mch. (3); **Z.** Sibudeni, Nov., Dec. (4); Umfolosi Station, July (1); **Tv.** Wakkerstroom, Mch., Apl. (9); Zuurbron, May (1).

The two adult females from Klipfontein are quite perceptibly paler than those from the other parts of South Africa. This is what would be expected from the desert nature of Namaqualand.

[This Kestrel is usually seen in pairs and is never found far from mountainous country, in the krantzes of which it feeds and roosts. In flight it much resembles *C. tinnunculus*, hovering like that species; the cry is loud and often repeated, especially in the breeding-season. The food consists mainly of mice, insects, especially grasshoppers and locusts, and occasionally small birds. It is very plucky, and I have seen it attack Crows and Hawks that have approached its quarters, and on one occasion I saw a pair stoop many times at a winged Knorhaan.

The soft parts of an adult are :—Irides brown ; bill slaty, darker at tip ; cere and round eye yellow ; legs and toes the same. In the young the colours are much duller.]

509. CERCHNEIS RUPICOLOIDES.

CC. Klipfontein, June (1) ; **Z.** Umfolosi Station, July (3) ; **Tv.** Turflop, Mch. (2).

In this case also the Namaqualand example is slightly, but perceptibly, paler than those from Zululand and the Transvaal.

The transverse barring on the flanks is absent from two females obtained at Umfolosi dated July 14 and 24. In these cases the light bands of the tail are pale tawny and not slaty blue, and the birds appear to be immature. An adult female from Turflop has the thigh-bands and only differs from the male in size. Reichenow has suggested that the absence of the thigh-bands is a female characteristic. It appears to me that their absence is merely a sign of immaturity.

[Unlike *C. rupicola,* this species is often found a long way from mountains or kopjes. It is generally seen perched on some low or stunted bush, and when disturbed merely goes off with a low flight to some other position a hundred yards or so away. It appears to be more or less solitary, and feeds principally on mice and insects, while I can find no record of having seen it chasing small birds.

The soft parts of an adult are :—Irides silver-grey ; bill light slaty, darker at tip ; base of lower mandible, cere, and round eye lemon-yellow ; legs and toes lemon-yellow.]

510. CERCHNEIS NAUMANNI.

Tv. Wakkerstroom, Mch. 2, 14, and 30 (4).

The two males are interesting, as they are both getting their blue heads by a gradual feather-change, and by the wearing away of the edges of the old feathers.

[I have observed this Kestrel only twice—when several flocks passed through the Wakkerstroom district during March 1904, and when a single flock passed close to Pietersburg in March 1906, going south, but were too high to be shot at. All that I saw spent their time hawking high in the air and were feeding on winged termites and locusts. Only an occasional bird was resting on the tops of the bushes and small trees. This species has a sharp call not unlike that of *C. rupicola*.

The soft parts of the adult are:—Irides brown; bare skin round eyes, lores, and cere very pale yellow; bill, base pale orange, tip slaty; legs and toes pale lemon, nails pale horn-coloured, tips darker.]

514. Baza verreauxi.

Z. Umfolosi Station, Aug. (1): **Tv.** Woodbush Hills, Nov. (1).

[This species was only twice obtained, once in Zululand and once in the Northern Transvaal. In both cases it was apparently solitary. Except that this Hawk inhabits forest and dense thickets, I have been unable to note anything of its habits or food.

The soft parts of an adult are:—Irides yellow; bill black; cere, legs and toes yellow.]

518. Aquila wahlbergi.

P. Beira, Jan. 27 (1 ♂).

[I have only seen this Eagle in the country near Beira, where it inhabits the patches and stretches of forest. It is usually solitary. I found it very wild, and it was only by very careful stalking that I at last succeeded in securing a specimen. I was unable to ascertain its food, and I do not think it was breeding at that time.

The soft parts of an adult are:—Irides dark brown; bill black; cere and gape pale lemon-chrome; toes pale lemon-chrome, nails black.]

525. Helotarsus ecaudatus.

Tv. Zuurbron, May (1 ♀).

["Berghaan" of the Colonists. "Cuculu" of the Zulus.

The Bateleur has been noted in every locality visited from the Cape northwards to the Zambesi. This is one of the most striking of the African birds of prey, the black under parts combined with the white under side of the wings make it a conspicuous bird on the wing. It is usually observed flying high overhead in large circles or travelling across at a terrific pace without any apparent movement of the wings, the flight being most graceful and strong. In the summer season the birds are seen in pairs, and when chasing each other in the air often turn completely over, striking at each other with the feet, probably in play. The cry is a single loud scream, only uttered when in pairs. I have never observed this species to hold its head at such an angle as that described by Millais, but certainly when hunting it has the beak pointed vertically downwards. It is a very wild bird and I have never succeeded in shooting a specimen, that secured having been taken in a trap baited with meat for cats. Its food consists mainly of lizards, mice, and also carrion; as stated above, I have never seen it attack buck or other game. The following extract from my diary may be of interest:—"25th February, 1907. During my stay around Beira I have seen some numbers of the Bateleur Eagle, and most of them I have been able to carefully examine through my glasses; all have been of the light-backed form (*H. leuconotus*), and I have been unable to identify one ordinary *H. ecaudatus*."

The soft parts of an adult are:—Irides rich brown; bare skin round eyes, lores, gape, and cere tomato-red; bill yellow, extreme tip slaty; legs and toes rich dark tomato-red patched with yellowish.]

Circaëtus cinereus.

Tv. Klein Letaba, Aug. (1): Legogot, May 20 (one chick in down); **P.** Coguno, July (1).

Both these birds are in the completely brown plumage which was considered by Sharpe and many others to be the immature stage of the black-breasted, white-bellied form of Harrier-Eagle described by Smith as *Circaëtus pectoralis*.

I am inclined, however, to believe that these two so-called plumages represent two distinct species, and that the brown forms are quite distinct from the white-bellied forms. In this case the former will be *C. cinereus* Vieill. and the latter *C. pectoralis* Smith.

I have the following reasons for coming to this conclusion:—

(1) Although in other respects the two forms do not differ in size, the bill of *C. pectoralis* is constantly and markedly smaller; in five examples in the British Museum it varies from 34 to 36 mm. measured with a pair of dividers from the front of the cere to the tip of the beak. In five examples of *C. cinereus* the bill measured in the same way averaged 44 mm.

(2) There seem to be no intermediate stages between the two forms, as one would expect to find if they were different plumages of the same species.

(3) As is shown by Mr. Grant's field-notes, *C. cinereus* breeds in the brown plumage.

I have examined the following additional examples in the British Museum:—

C. pectoralis—"Cape of Good Hope" (*Laugier*), "Cape of Good Hope" (*Derby*), Ondonga ♀ (*Andersson*), Pangani River (*Kirk*), and Brava, S. Somaliland (*Kirk*). The last-named is considerably smaller than the others.

C. cinereus—S. Africa (*S.A. Mus.*), King William's Town (*Trevelyan*), Durban (*Warwick*), Ft. Chiquaqua, Mashonaland ♀ (*Sowerby*), Nyasaland 3 ex. (*Sharpe and Manning*), Humbe ♀ (*Anchieta*).

[I have found this Eagle nowhere common, and have only noted it from the Northern Transvaal and from the Inhambane, Beira, and Gorongoza districts of Portuguese East Africa. It is generally seen circling over the tops of the bushes or perched on the topmost branches of some prominent tree. It is very wild and difficult of approach, even to get within good rifle-shot. It breeds in the forks of the larger trees, and I discovered a nest near Legogot in May so placed in a solitary tree on a hillside. It was a huge mass of sticks, and contained one young bird recently hatched. Both the parents were flying around, but were too wary to secure. According to the natives I have questioned, this Eagle does not do any damage among their flocks or poultry.

The soft parts of an adult are :—Irides bright yellow; bill black; legs and toes dirty white.]

530. Kaupifalco monogrammicus.

P. Coguno, June, Aug. (4); Tambarara, Mch. (1).

[I first saw this species in the low country of the Northern Transvaal, but did not secure any specimens; since then I have only noted it in the Inhambane and Gorongoza districts of Portuguese East Africa. It is usually observed sitting in the trees on the outskirts of the woods and forests, and when disturbed goes off with a low flight, rising with an upward sweep to the branches of a tree a few yards away. It is fairly tame and easy of approach. The food usually consists of lizards, scorpions, and grasshoppers, and sometimes carrion; the one shot at Tambarara swooped into my camp, took a piece of baboon meat that was lying on the ground, and was devouring it in a tree close by when I shot it.

The soft parts of an adult are:—Irides dark blood-orange; bill black; cere dark orange; legs and toes tomato-red.]

531. Buteo jakal.

CC. Klipfontein, Apl., May, June (4); **Tv.** Zuurbron, May (1); Wakkerstroom, Mch. (1); Woodbush, Dec., Jan. (3).

[This species has been noted in Namaqualand, the Knysna district, Zululand, the Transvaal, and in the Gorongoza Mountains. In all the southern localities it was commonly found; a good many were seen at Woodbush, but only a single pair was observed in the Gorongoza Mts. I have never noticed this Buzzard away from mountainous country. It is usually seen perched on some tree or prominent rock, or soaring in large circles high overhead. Pairs are commonly seen, and the cry is very loud. It often visits kraals and homesteads, and steals chickens and young ducks.

The soft parts of an adult are :—Irides brownish yellow ; bill dark brown, tip blackish ; cere and gape yellow ; legs and toes dirty yellow.]

533. Buteo desertorum.

CC. Knysna, Dec. 24, 29, Jan. 22, 26, 28 (5) ; Plettenberg Bay, Mch. 6 (1) ; **Tv.** Zuurbron, May 1, 13 (2).

I used to believe that this species was only a summer visitor to South Africa, but the birds taken at Zuurbron in May shew that it stays later, at any rate, than I thought, even if it does not remain throughout the winter.

[I have only noticed this Buzzard in two localities, viz. the Knysna district, where it was common ; and in the South-East Transvaal, where only the two secured were seen. Although the two shot at Zuurbron were taken on different days I believe that they were a pair, and my boys told me that they thought they were nesting somewhere near, but I was unable to authenticate their statement. The flight and general habits are very similar to those of *B. jakal*, but the small size and lighter coloration at once distinguishes this species. The cry is not nearly so loud.

The soft parts of an adult are :—Irides light brown ; bill slaty, gape lemon-yellow, cere pale greenish yellow ; legs and toes pale Naples-yellow, nails black.]

534. Milvus ægyptius.

Z. Umfolosi Station, Sept. 10 (1) ; Sibudeni, Oct. 30, Nov. 11 (2) ; **Tv.** Klein Letaba, Sept. 20, 24, & 26 (3) ; **P.** Masambeti, Nov. 10 (1) ; Beira, Feb. 11 (1 juv.) ; Tete, Sept. 9 (1).

[" Chabe " of the Zulus. " Nseleli " of the Ntebis.

This Kite was observed at all the localities visited in the summer season. It arrives about the middle of August or the beginning of September and leaves again in March. It was found much more plentifully in the northern localities, especially at Tete. It was in enormous numbers in every port visited up the east coast from Beira to Port Said during my voyage home, hovering continuously round the steamer and feeding on the scraps thrown overboard. It is usually in pairs, and spends the greater portion of its time in hawking around homesteads and native kraals, and stealing quantities of fowls and ducks. The flight is gliding and graceful when circling over the ground in search of food, but is a series of heavy flops when the bird is moving from one place to another. The call is shrill, and is generally only used when the birds are in pairs.

The soft parts of an adult are :—Irides dark brown ; bill and cere yellow ; legs and toes the same. In the young the irides are brown ; cere and gape lemon-yellow ; bill dark brown ; legs and toes lemon-yellow.]

536. ELANUS CÆRULEUS.

CC. Klipfontein, May (1); Anemous, Apl. (1); **Z.** Jususie Valley, Dec. (1) ; Hluhluwe Stream, Aug. (2); Umfolosi Station, Sept. (1) ; **Tv.** Wakkerstroom, Apl. (1); Legogot, May (1).

[" Okosi " of the Zulus.

The Black-shouldered Kite has been noted in every locality visited, from Namaqualand on the west to the Zambesi on the east. It is a most conspicuous little bird and cannot be mistaken for any other species. It is usually seen either sitting on the topmost branch of a big dead tree or slowly hawking within a few feet of the ground in search of prey ; this consists mainly of mice, frogs, lizards, and insects, especially large ground-beetles, and it will also take young and half-fledged chickens, visiting homesteads and kraals for that purpose and often paying the penalty with its life in consequence. When sitting, the tail is often held erect, giving the bird a peculiar appearance from a distance. It is observed equally singly and in pairs ; its call is loud and often repeated.

The soft parts of the adult vary individually and are as follows :—Irides red-brown ; bill black ; cere greenish yellow ; round eyes and base of lower mandible yellow ; legs and toes lemon-yellow. Another has :—Irides dark red ;

bill black; cere, round eyes, and gape lemon-yellow; legs and toes pale yellow. And yet another has:—Irides orange-red. In the young the irides are pale yellow.]

539. ACCIPITER MINULLUS.

CC. Knysna, Feb. (1); Plettenberg Bay, Mch. (1); **P.** Coguno, Aug. (1); Tete, Sept. (1).

The two adult males from Coguno and Tete are markedly paler than the Knysna example, which might be described as black above, while the Portuguese specimen is slaty-blue.

This species is very poorly represented in the British Museum, but there are four adults from Natal which are nearly as dark as the Knysna bird, while a few examples from East Africa are rather paler, but none of them contrast quite so strongly as those in the present collection. This may be due to the existence of a dark and light phase, or there may be a geographical or possibly seasonal variation; the material at hand is not sufficient to decide the question.

[This little Sparrow-Hawk has been noted in Zululand, the Knysna district, the Transvaal, and the Inhambane and Tete districts of Portuguese East Africa. It is a Hawk of the forests and well-wooded country, and in flight and habits much resembles *A. nisus*.

The soft parts are:—*Ad.* Irides yellow; cere, round eyes, and legs and toes yellow. *Juv.* Irides dirty yellow; cere, legs, and toes greenish yellow.]

540. ACCIPITER RUFIVENTRIS.

Tv. Zuurbron, May (1).

[Although I only observed this species in the locality the specimen comes from, it must exist in every wooded country that I visited, and no doubt I have mistaken it for *Astur tachiro*, to which species, except for the fact that it does not soar, it is similar in flight and general habits.

The soft parts are:—Irides bright yellow; cere greenish yellow; bill pale slaty at base, dark at tip; legs and toes bright yellow.]

541. ACCIPITER OVAMPENSIS.

Tv. Legogot, May 15 (1 ♂).

This is a rare species. I have found in the British Museum collection three examples from the Upper Zambesi, one from Nyasaland, and one from Abyssinia. So far as I know, it has not been previously taken further south than the Umfuli River in Mashonaland, where Marshall found it breeding. Its occurrence in the Barberton district of the Transvaal, therefore, is a considerable extension of its range.

[I have not seen this Hawk elsewhere than at Legogot, and there the only specimen observed was secured. It was taken in ordinary "bush-veld," the flight being exactly similar to that of the other members of the genus.

The soft parts are:—Irides reddish brown; cere orange; gape and round the eye lemon: legs and toes dull orange.]

543. ASTUR TACHIRO.

Z. Sibudeni, Nov., Dec. (2); Ngoye Hills, Oct. (1); **Tv.** Wakkerstroom, Mch. (1); Zuurbron, May (1); Woodbush, May (1); **P.** Tambarara, May (1).

["Emvumvyane" of the Zulus.

This Goshawk has been noted from Ngoye and Sibudeni in Zululand; Zuurbron and Wakkerstroom in the S.E. Transvaal; Woodbush in the Northern Transvaal; and the Inhambane and Gorongoza Districts of Portuguese East Africa. It is strictly a Hawk of the forests, and all the specimens secured were taken in forest country, except the young one from Wakkerstroom; this was shot in a plantation and orchard at a homestead in open country, and was probably passing over. I have generally seen this Hawk in the interior of the forests, when walking quietly through or sitting up for Bluebuck. The flight and appearance much resemble those of the European Sparrow-Hawk (*A. nisus*). It, however, has the peculiar habit, unlike any other Hawk I have seen, of often soaring to such a height that it can only be detected with a good glass, flying in smaller or greater circles with quick wing-beats and uttering at regular intervals a shrill "kik." I have observed that it only soars in the very early morning between the first streaks of dawn and until the sun is well up, when it descends at a terrific pace in one straight "stoop," not checking itself till within the top of the tree.

The soft parts of the adult are:—♂. Irides yellow; bill slaty; cere, bare skin round eyes, legs, and toes yellow. ♀. Irides greyish yellow; eyelid bright yellow; bill light slaty at base, dark at tip; cere dark yellowish green; legs and toes bright yellow. Another male not quite so old has the irides hazel; bill slaty; cere, bare skin round eyes, legs and toes yellow. In the young the irides are raw umber; bill light slaty at base, dark at tip; bare skin round eye, lores, and nostrils greenish yellow; legs and toes lemon-yellow.]

544. ASTUR POLYZONOIDES.

Tv. Klein Letaba, Sept. (3 imm.).

[Curiously enough I only noted and obtained this little Goshawk at the Klein Letaba. It was generally observed sitting on an outside branch of a tree, and when disturbed only flew to another some forty or sixty yards away.

The soft parts of an immature bird were:—Irides yellow; bill dark slaty; cere greenish yellow; legs and toes yellow.]

545. MELIERAX CANORUS.

CC. Klipfontein, May, June, July (3); **Tv.** Woodbush, June (1 imm.).

One egg from Klipfontein, taken Aug. 16, is rather rough in texture, white with a slight bluish tinge, and measures 59 × 53 mm.; it is an almost perfect oval in shape.

["Blaauw-valk" of the Colonists.

Since the Central Cape Colony trip I have only observed this Hawk in Namaqualand, where it was plentiful, and in the Transvaal, where only the single specimen secured was seen. It usually perches on telegraph-posts or the tops of large bushes or stunted trees, and feeds largely on lizards. The immature bird from the Transvaal was shot sitting on the post of some wire fencing, and was solitary, and was the only one seen throughout all the months spent there. On the 16th Aug., 1903, I found the nest at Klipfontein, Namaqualand; it was a large structure of sticks, lined with similar but finer material, placed on the top of a large Taai-bush; it contained only one egg: the old bird was not obtained, although, on two or three days running I put her off: she was too wild for me to get within shot of her.

The soft parts of the adult are:—Irides dark red-brown; bill dark slaty, cere and base of bill blood-orange; legs and toes bright red. The immature bird has the irides much yellower; bill blackish, cere pale orange; legs and toes blood-orange.]

549. CIRCUS CINERACEUS.

Tv. Pietersburg, Mch. 7 (1 adult ♂).

[I only observed Montagu's Harrier during the summer at Wakkerstroom, where it was not uncommon but too wild to approach; at Pietersburg, where it was noticed on the same ground as *C. macrurus*; and at Beira in January, where I saw a single male among several Pale Harriers, but there may have been others. On the wing it is not usually distinguishable from *C. macrurus,* which it also resembles in habits.

The soft parts of an adult male are:—Irides clear medium yellow; bill black; cere greenish yellow; legs and toes lemon-yellow.]

550. CIRCUS MACRURUS.

Tv. Pietersburg, Mch. 6 (1 imm. ♂).

[The Pale Harrier was noticed only in the Wakkerstroom and Zoutpansberg districts of the Transvaal and in the flats near Beira, always in the African summer season. It is generally observed hawking over open country covered with long grass and dry and wet vleis and stretches of marshy ground. It is interesting to watch the systematic way in which these Harriers quarter the country, searching carefully every foot of ground. When hawking they fly just clear of the tops of the grass, halting to find any possible prey and dropping straight on to it. They do not carry their prey to some vantage spot to devour, but eat it where caught.

The soft parts of an immature male are :—Irides yellow ; bill dark slaty, cere greenish ; legs and toes yellow.]

553. Circus ranivorus.

CC. Plettenberg Bay, Mch. (1) ; **Z.** Umfolosi Station, July, Aug. (2) ; Hluhluwe Stream (1) ; **Tv.** Wakkerstroom, Mch., Apl. (2).

[I have observed the Marsh-Harrier at Plettenberg Bay, Zululand ; in the Transvaal ; and in Portuguese East Africa, in the Inhambane and Beira districts. It is generally seen hawking backwards and forwards over extensive vleis and marshes, and occasionally over stretches of long grass country. It feeds largely on frogs and vlei-rats, and I saw one on the outskirts of Pietersburg take a Pigeon from a flock of tame birds that were circling round. It struck it with a pretty stoop, both Harrier and Pigeon coming to the ground together.

It breeds in the thick reeds and sedges in vleis and marshes, but although I have on several occasions disturbed the old birds I have never succeeded in finding the nest.

The soft part are :—*Ad.* ♂. Irides brown ; bill black ; cere, legs, and toes yellow. *Imm.* ♂ & ♀. Irides yellow ; bill black, cere slightly yellow ; legs and toes yellow.]

554. Polyboroides typicus.

Tv. Wakkerstroom, Mch. (1) ; **P.** Masambeti, Oct. (1) ; Beira, Jan. (1).

[" Skosi " of the Ntebis.

I have only noticed this species at Wakkerstroom and the Inhambane, Beira, and Gorongoza districts of Portuguese East Africa ; it was observed on my overland trip from Gorongoza to Tete, but was not seen actually near Tete itself. It appears to be confined to more or less wooded country, but cannot anywhere be considered plentiful, and is always observed in pairs. It is generally noticed hawking about native clearings and feeds largely on locusts and large ground-beetles, taking its prey to some bare tree or stump to devour; I have never seen it chasing small birds. The flight is very Harrier-like, but never long-sustained, the bird generally hawking over a small stretch of ground and then pitching down for a short spell; often, however, it rises to a great height and circles about after the manner of *Buteo jakal*. When seen from below, the pattern of the wings and tail is most striking and the bird appears far larger than it actually is. The cry is a long drawn out whistle, not unlike one call of the Kestrel, and is uttered both on the wing and when sitting, especially when the two birds are far apart. I could learn nothing from the natives as to its breeding-habits.

The soft parts of the adult are:—♂. Irides dark brown; bill black; cere, round nostrils, and gape pale fleshy; rest of bare skin on head and base of lower mandible lemon-yellow; legs and toes lemon-yellow. ♀. Irides brown; bill black; cere, lores, base of lower mandible, and all bare skin on rest of head lemon-yellow; legs and toes dirty yellow.]

563. SERPENTARIUS SERPENTARIUS.

Tv. Pietersburg, Feb. (2).

["Thlami" of the Basutos.

The Secretary-Bird is by no means an uncommon species, but in most localities is very wild. I have observed it in Namaqualand, where I am told by the natives and residents that it breeds, placing the nest on the top of large bushes, generally the "Taai-bosch"; in Zululand especially near Eshowe; in the S.E. and N. Transvaal: while I saw a single pair at Coguno, Inhambane district, and another on the flats near Beira. It is at all times of the year found in pairs and generally frequents open country. The walk is slow and majestic, the bird at first sight being often mistaken for a Crane. When followed it often breaks into a sort of amble with the wings slightly raised; this is also done before taking to flight. The flight is slow with a steady beat of the large wings, the legs being held back, but not close under the tail. It generally keeps close to the ground, and after several beats of the wings, a glide accompanied by a slight twisting of the body is often indulged in, which makes one think that the bird intends pitching. On landing, the legs are thrown forward with the wings outspread, and the latter are then slowly and carefully folded. I have never heard the bird call or cry. The food consists of lizards, grasshoppers, locusts, and the young of birds and mammals. Owing to its destroying quantities of young Francolins and hares, protection has recently been withdrawn from it in the Transvaal. On seizing any prey the crest is raised and the wings also slightly elevated.

The soft parts of the adult are:—♂. Irides dark raw sienna; eyelid greenish yellow; basal half of lower mandible and cere lemon-chrome; apical portion of lower mandible and whole of upper pearly white; extreme base of lower mandible, lores, and bare skin above, below, and behind the eye bright orange-chrome; legs and toes pale flesh-coloured. ♀. Irides pale silvery brown with dark streaks; eyelid greenish yellow; basal half of lower mandible and cere to gape pale lemon-chrome; apical portion of lower mandible and whole of upper pearly white, slightly paler than in the male; lores orange-chrome; bare skin immediately above eye bright lemon-chrome; rest of bare skin above, below, and behind the eye dull crimson flesh-coloured; legs and toes as in the male.]

567. PHALACROCORAX AFRICANUS.

N. Illovo, Nov. (1 ♂ juv.); **Z.** Ngoye Hills, Oct. (1).

[The River Cormorant has been noticed in every locality up the eastern side of South Africa, and was found especially plentiful in Zululand and Natal and on the rivers in the Tete district. It generally frequents open sheets of reed-fringed water and the sand-locked estuaries of the rivers, but I have also seen it commonly in the deep-shaded rivers and streams of the Ngoye Hills. The cry is clear and loud, and cannot be mistaken for that of any other bird except perhaps *P. petersi*. When going to and from the feeding-grounds, parties sometimes travel in a V-formation.]

568. PLOTUS RUFUS.

Z. Umfolosi Station, Aug. (1).

["Phishamanzi" of the Zulus.

A fairly common species on most of the lagoons and large rivers, but a difficult bird to obtain. It appears to be usually solitary, although several may be seen on the same piece of water. It is commonly observed sitting upright on some snag or rock, sunning itself with the wings outspread, as do the Cormorants.]

578. Ciconia ciconia.

[No example secured.]

[I have only once noticed this species, when I saw several feeding on the low-lying ground close to the town of Wakkerstroom in February 1904, but they were quite unapproachable, and at the time I had no rifle with me.]

579. Ciconia nigra.

Tv. Klein Letaba, Aug. (1).

[I have occasionally observed this species on some of the rivers to the northwards, always in winter time. It was found to be excessively wary, flying up and pitching on the tops of tall trees on the first alarm, in which position it was unapproachable. The only specimen secured was brought down by a long shot with a rifle.]

584. Scopus umbretta.

CC. Plettenberg Bay, Mch. (1); **Z.** Umfolosi Station, Sept. (1); Ngoye Hills, Oct. (1); **Tv.** Wakkerstroom, Mch., Apl. (3); Klein Letaba, July, Aug. (3); **P.** Tete, Sept. (3 and 4 nestlings).

One egg from Tete taken with the nestlings on Sept. 22.

["Hammer-kop" of the Colonists. "Gaundo" of the Machangaan. "Dwy-dwy" of the Nhlangaan. "Sikiva" of the Zambesi region.

This is one of the commonest birds in South Africa; there is not a spot that holds water where a pair of these birds may not be seen. It feeds principally on tadpoles, frogs, toads, and occasionally small fishes. I have many times watched it feeding, and noticed the clever way in which it pushes the feet step by step under the water, the beak being ready poised to strike at the small fry driven out. I have never seen this bird in water deeper than up to the knees. A great number of nests were observed, but until I reached

Tete I was unsuccessful in finding one occupied. This nest was robbed on the 22nd Sept., 1907, when it contained four young in down and one infertile egg. The nest, which was placed in the fork of a large tree some 12 ft. from the ground, was the usual huge conglomeration of sticks, having the entrance-hole at the side leading to the centre cavity in which the eggs are laid; there was no lining of feathers or other material. The cry is shrill and sharp, and can be heard at a good distance, and may be described as "sikwee, sikwee, kwee kwee," sharply pronounced. Both the Machangaan and Nhlangaan names have reference to the long legs, but the Zambesi name is derived from the call.

The soft parts of the adult are:—Irides dark brown; bill, legs and toes sooty black. In the nestling the irides are white; bill blackish horn-coloured; legs and toes rather paler.]

585. Ardea goliath.

Z. Umfolosi Station, Aug. (1 ♀).

587. Ardea melanocephala.

Tv. Pietersburg, Feb. (1).

588. Ardea purpurea.

P. Masambeti, Nov. (1).

["Shiku" of the Ntebis.

I have only occasionally noticed this Heron and always in the summer season. It is found along dykes, ditches, and swampy country, standing in the water or at the edge, and feeds principally on frogs and tadpoles. It is very tame, and if flushed at close quarters will often fly up and perch on the top of a tree. I have seen both immature and old birds; in November 1907 near Beira I killed one in first plumage that had not yet started moulting, but as it was shot with an expanding bullet it was unfit for preservation.]

594. Bubulcus ibis.

Z. Umfolosi Station, Aug., Sept. (5); Ngoye Hills, Oct. (3).

[This is a common bird on the coast and coast-lands, and is always found in flocks of considerable numbers. During a portion of the year, especially the rainy season, it is found in the interior, but during the drier months keeps more or less in the coast country. It is usually seen accompanying herds of cattle or big game, either picking up ticks and insects on the ground or perched on the animals' backs. In flight the flocks keep no regular formation and they often travel long distances to roost. In Beira Harbour they regularly left the Beira side at sundown, and went away to the mouth of the Busi River.

The soft parts are:—Irides yellow; space round eye, lores, and bill yellow-chrome; legs and toes pale yellow. In younger specimens the legs and toes are dusky, pale yellow on the tibia and the tibio-tarsal joints.]

597. BUTORIDES ATRICAPILLA.

Z. Ngoye Hills, Oct. (1); **Tv.** Klein Letaba, Aug. (1); **P.** Masambeti, Nov. (1).

[" Nyekauruk " of the Ntebis.

This River-Heron is by no means uncommon on most of the rivers and streams, and I have also seen it in the mangrove-swamps in Beira Harbour. It is most generally met with in the small streams thickly bushed or those that run through forest. When disturbed it seldom flies far, often disappearing into long grass and reeds or sometimes sitting upon the limbs of the forest trees. A quick pronunciation of the Ntebi name gives an excellent idea of the cry.

The soft parts of an adult are:—Irides yellow; round eyes, lores, and lower part of lower mandible greenish yellow, rest of bill black; legs and toes lemon-yellow; front of tarsi and toes slightly brownish. In the immature bird the brownish part of the tarsi and the toes is much more pronounced and the lores are dusky.]

598. NYCTICORAX GRISEUS.

P. Beira, Jan. (1 ♀ juv.).

[I do not recollect having seen the Night-Heron anywhere except in the Beira and Tete districts. It was very common in the mangrove-swamps in Beira Harbour, and dozens could be seen leaving the shelter of the bushes for their feeding-grounds just on sundown. The cry is a harsh squawk, frequently uttered when the birds are moving from their resting-quarters, but when disturbed in the daytime they are silent.

The soft parts of the female are:—Irides pale yellow; space round eyes and lores greenish yellow; bill, lower half of upper and the lower mandible yellow, culmen and tips of both mandibles blackish brown; legs and toes yellow.]

602. ARDETTA STURMI.

P. Beira, Jan. (1).

[This little Bittern was only observed on one occasion during all the years I spent in South Africa. I shot it one morning as it rose from the wide ditch dug alongside the railway, which, owing to the very heavy rains, was filled with water.

The irides were yellow; bare skin on lores and round eyes dusky yellow; bill blackish, lower mandible paler; legs and toes dark yellow.]

605. GERONTICUS CALVUS.

Tv. Wakkerstroom, Feb. (3).

["Wilde Kalkoen" of the Colonists.

I have only observed this Ibis in two localities—at Wakkerstroom, where specimens were secured, and on another occasion when I saw a small party high up on the Jususie River in Zululand. It was very plentiful during my visit to Wakkerstroom, flocks occupying every patch of damp and wet ground; it was also seen in the open dry grass-land catching small insects. The colonial name of the "Wild Turkey" is derived from the bareness and red colouring of the head.

The soft parts of an adult are:—Irides red; bill, crown, and legs dull red; bare skin of head and neck fleshy.]

606. HAGEDASHIA HAGEDASH.

Z. Sibudeni, Nov., Dec. (2); **Tv.** Zuurbron, May (1); **P.** Coguno, June (1).

["Hadadah" of the Colonists. "N'Kankani" of the Zulus.

This is by far the commonest of the Ibises, being found everywhere within a reasonable distance of water. I have noticed this species in every locality visited in East and East Central South Africa. It is gregarious, less than half a dozen are seldom seen together, and I have observed flocks of a hundred and upwards in the Zambesi region. This Ibis is an early riser, often being heard moving before daylight and seldom retiring at night till sundown or after. Where such exist it roosts in the woods and forests, or otherwise in the larger trees of the ordinary "bush-veld." Its discordant cry can be heard everywhere, especially when flocks are moving from one locality to another.

The soft parts of an adult are:—Irides dark crimson; bill and lores sooty, culmen dull red; legs and toes sooty, dull red on front of the tarsi and the upper surface of the toes.]

612. PLECTROPTERUS NIGER.

[No example preserved.]

Seven eggs taken at Wakkerstroom, April 4.

[I have noticed this species in Zululand, Wakkerstroom, the Inhambane district, and the country between Beira and Tete on the Zambesi. I secured a clutch of seven eggs on the 4th of April, 1904, at Wakkerstroom. The nest was a mere hollow in the centre of a patch of tall grass in an extensive vlei, without any lining of feathers or grass. I had the day previous hit and lost the old bird, and it was while wading about searching for it on the following day that I discovered the nest. This Goose is generally observed in strings of from six to a dozen, and when on the wing they travel in a line one behind the other.]

615. DENDROCYCNA VIDUATA.

Z. Umfolosi Station, July, Aug., Sept. (5).

In a young female the white face is not so strongly marked and the front part of the crown is not white, only a little lighter brown than the hind portion; in another young bird, also a female, the black does not extend across the throat.

[The White-faced Tree-Duck was only observed in two localities—on the Umfolosi River in Zululand and on the Zambesi River, where I saw a flock of about fifty individuals near Tete on the 5th Aug., 1907. It was the commonest Duck to be met with in Southern Zululand, and could be seen any day in vast flocks on the lagoons which had been left by the river when in flood. The flight is strong and fast, and excellent shooting is obtained by lying between the lagoons and sending a native round to put up the birds. The call is a low whistle, which is continually uttered when on the wing ; from this the species is often known by Colonists as the Whistling Duck.]

616. DENDROCYCNA FULVA.

P. Tete, Aug. (1).

A rare Duck in South Africa, only known from the Zambesi Valley and Lake Ngami, while a stray individual was once obtained near Durban.

[I have never seen this Duck alive ; the specimen that was secured was accidentally caught in a rope noose that had been set in some reeds fringing the Mazoe River for cane-rats. Although I was continually collecting on both the Mazoe and Luenya Rivers, I did not see any others.]

619. ANAS UNDULATA.

Tv. Wakkerstroom, Mch., Apl. (6 ad. + 6 juv.).

The adults are all just commencing to moult ; the primaries are very much worn, but in no case have they been renewed. Five quite young individuals, dated April 4, have the head, neck, shoulders, and back still covered with down, dark brown on the back, yellowish white on the sides of the face and neck and throat. The rest of the plumage does not differ essentially from that of the adult, except that the central parts of the breast and belly are whiter than in the adult.

["Geelbec" or "Yellow-bill" of the Colonists.

Also one of the commonest Ducks and observed in most localities from the Cape Peninsula northwards ; it was specially plentiful at Umfolosi and Wakkerstroom. The Yellow-bill is more partial to large open sheets of water or vleis and rivers in the open country than *A. sparsa,* and is generally found in small parties of from six to twenty, although sometimes only pairs are seen. I do not think this Duck calls when on the wing so much as *A. sparsa.* When on the wing flying over water it appears quite of a bluish colour, and I have at first glance several times failed to recognise the species Several young were secured in April from a vlei near Wakkerstroom, where they had obviously been bred in the long grass.]

620. Anas sparsa.

Z. Ngoye Hills, Sept., Oct. (1 ♀ and 4 juv.); **P.** Tambarara, Apl. (1).

Young birds out of down with the speculum just appearing are almost white on the lower breast and belly, but in other respects very similar to the adults.

[I think I have seen the Black Duck in every locality visited, except in Namaqualand, where there was no water for it to frequent. This Duck is always seen in pairs in and out of the breeding-season, except when the young are just able to fly, when the old pair and the young keep together for a time. Young birds were secured in Zululand in September and October; in the latter month three were shot with one barrel from a brood of six on a small river in the Ngoye Hills, on this occasion no old birds were present. When travelling in pairs the drake continually calls to the duck and she answers back, the call being identical with that of *A. boscas*; but when travelling singly no call is heard. In Gorongoza I saw these Ducks flying every evening just after sundown, returning again by the same route on the first streaks of dawn; but they always passed too high for shooting. The flight is straight and very fast.]

622. Nettion punctatum.

Z. Umfolosi Station, Aug. (2).

[The Hottentot Teal was seen on the lagoons at the Umfolosi River in Zululand; several pairs were observed on the Tsende River in the North-Eastern Transvaal in Sept. 1905, which at that time of year was only in pools, and one pair was noticed flying down the Mazoe River in Sept. 1907. Its small size combined with the white tips to the secondaries at once distinguishes it on the wing from every other Duck.

The soft parts of an adult are:—Irides brown; bill and legs pale blue-slaty.]

623. Pœcilonetta erythrorhyncha.

P. Beira, Nov. (1).

["Dinoili" of the Ntebis.

I have seen this Duck in several localities visited—notably Zululand, the South-Eastern Transvaal, and the Inhambane and Beira districts of Portuguese East Africa. It is observed singly, in pairs, or often in flocks of about half a dozen, and frequents open water in swamps and lagoons near rivers or occasionally small pools in secluded spots, the last probably for the purpose of breeding. I find the following reference in my diary to a male of this species and a female of *Nyroca erythrophthalma* which I shot together on a small pool in a reedy swamp near Beira:—

"I especially record this as they were both shot together, and were the only ducks that were on the vlei; it is, however, doubtful whether they were paired, although it is curious that they were male and female and that it was the summer season."

626. Nyroca erythrophthalma.

Tv. Wakkerstroom, Apl. (2); **P.** Beira, Nov., Dec. (2).

[This Pochard is a bird of the open water, and I have never found it on shaded rivers or smaller streams. It was commonly noted, though wild, on all the expanses of water at Wakkerstroom; it was occasionally seen on the lagoons at Umfolosi and the lakes and marshes near Beira; I also saw a pair on the Zambesi in Aug. 1907. At Wakkerstroom it was generally in flocks of from six to a dozen of both sexes, but elsewhere I have only seen it in pairs or singly.

The soft parts of an adult male are:—Irides yellow; bill slaty; legs sooty.]

629. Vinago delalandii.

Z. Sibudeni, Nov. (1); Jususie Valley, Dec. (1); Umfolosi Station, July (1); Hluhluwe Stream, Aug. (1); **Tv.** Klein Letaba, July, Aug., Sept. (7); Legogot, May (1); **P.** Masambeti, Oct., Nov. (2); Beira, Nov., Dec. (2); Tete, Sept. (1).

[Delalande's Fruit-Pigeon was taken in every locality visited in East and East Central South Africa from Zululand to the Zambesi. Found in flocks at all seasons, often of a hundred or more, it frequents well-timbered country, especially the trees along the rivers. It is essentially a fruit-eater, being very partial to the wild fig, the Ntuma, and Num Num. The flight is very straight and fast, the flocks twisting through the trees with marvellous rapidity and ease. In Jan. 1907 I found a nest, which was placed in the fork of a small tree some fourteen feet from the ground, and was merely a collection of small sticks; the old bird, however, deserted it without laying and after having been seen there for many days.

The soft parts of an adult are:—Irides white; bill rich tomato-red, apical portion pearly white; legs and toes rich orange, nails pearly white.]

VINAGO WAKEFIELDI Sharpe.

VINAGO WAKEFIELDI.

Vinago wakefieldi Reichenow, Vög. Afr. i. p. 398.

P. Tambarara, Mch. (1); Tete, Sept. (1).

These birds seem to be nearer to *V. wakefieldi* than to *V. schalowi*. The wings measure 168 and 170 mm. respectively, and the terminal band of the tail is about 25 mm. broad.

This species, if really distinct from *V. schalowi*, is an addition to the fauna of South Africa.

[For a few weeks this Green Pigeon was very plentiful at Tambarara, frequenting the forests in enormous flocks, but about the end of April the birds all disappeared. It was, however, somewhat wary and was always in the thick forest, where it became difficult to secure specimens. The call is exactly similar to that of *V. delalandii*, but on the wing it appears much brighter in colour and smaller, despite the actual measurements being the same.

The soft parts of an adult male were:—Irides blue-grey; bill tomato-red, apical portion pearly white; legs and toes yellow-ochre, nails bluish.]

631. COLUMBA PHÆONOTA.

CC. Klipfontein, Apl. (2); Plettenberg Bay, Mch. (2); **Tv.** Wakkerstroom, Mch., Apl. (8); Zuurbron, May (1); Turflop, Mch. (1).

["Corn Pigeon" of the Colonists. "Ijuba" of the Zulus.

The Rock-Dove, as its name implies, is found only in the mountains and hills, where masses of rocks and cliffs afford cover for breeding and nesting; when in search of food it will travel considerable distances to cultivated lands, always, however, returning at nightfall. I have noted it from the mountains of Namaqualand, the cliffs of the coast-line of the Knysna district, in the Nkandhla Range at Sibudeni, Zululand, on the krantzes at Wakkerstroom and at Zuurbron, Legogot, and Woodbush. In many parts this Pigeon is of some annoyance to farmers, doing considerable damage to cereal crops. In general habits it greatly resembles our European Rock-Dove.

The soft parts of an adult are:—Irides yellow; bare skin round eye, legs and toes dark red, whitish between the scales; bill dull black, nostrils powdered white.]

632. COLUMBA ARQUATRIX.

CC. Knysna, Dec. (2); **Z.** Sibudeni, Nov. (8); **Tv.** Zuurbron, Apl., May (5).

["Ijuba" of the Zulus.

I have only noticed this species at the Knysna, Sibudeni, and Zuurbron. At the Knysna only three specimens were observed, two of the three being obtained at one shot, and at Sibudeni it was by no means plentiful, though at Zuurbron considerable numbers were observed. It is a Pigeon of the forests, feeding on the berries of the ironwood and other trees and shrubs, and seldom visiting cultivated lands or only those adjacent to forest. Its presence or otherwise in a district much depends on the food to be obtained; hence, except after long residence in any district, no accurate observations of the habits can be made. It appears to be a more or less gregarious species, as half a dozen at least can often be seen together.

The soft parts of an adult are:—Irides clear yellow; bare skin round eye, bill, legs and toes lemon-chrome.

In the young:—Irides very pale; bill at base, legs and toes greenish yellow.]

633. Turturœna delagorguei.

Z. Ngoye Hills (2).

[I have only seen this Dove in two localities—in the Ngoye Hills, where I obtained the pair secured, and on another occasion when I saw a solitary specimen in a thick patch of forest under Suel's Kop in the Woodbush of the Northern Transvaal. The two I shot in Zululand are undoubtedly a pair, for although the female was taken four days after the male, I saw her every day in the same tree where I had seen them on the first day, but until the fourth day was unable to get a sure shot. At the time I first noticed them the male was courting the hen bird, walking backwards and forwards along a branch, filling out his chest and cooing like an ordinary tame Pigeon.

In the male the irides are yellow; bill pale slaty; legs and toes crimson. The female has the irides yellow; bill pale slaty; legs and toes pale crimson.]

634. Turtur semitorquatus.

Z. Sibudeni, Jan. (2); Jususie Valley, Nov. (1); Umfolosi Station, July (2); **Tv.** Klein Letaba, Sept. (2); Legogot, Apl. (1); **P.** Coguno, June (3); Beira, Dec. (1); Tete, Sept. (1).

I should have expected the birds from Beira and Tete to be referable to *T. ambiguus*. There are examples from the last-named locality in the British Museum so named. But Grant's Tete bird has no trace of white on the under tail-coverts, and the abdomen is of quite as dark a slate-colour as in the Zululand bird. In these respects it differs from Kirk's Tete bird, which I suspect was really procured elsewhere.

["Ijuba" of the Zulus.

In working from the Cape northwards and eastwards I first noted the species at Sibudeni and the Jususie Valley in Western Zululand, afterwards finding it in every locality visited in Zululand, Natal, the Transvaal, and in Portuguese East Africa from Coguno to the Zambesi. Where found it was quite one of the commonest Pigeons, and after the harvest has been gathered in the native lands immense numbers congregate in the early morning and late afternoon to feed on the fallen grain, and I have on many occasions shot five or six with one barrel. This Dove drinks regularly just at sundown. The species is not truly gregarious, moving about singly or in pairs and threes, only congregating in certain spots for feeding and drinking. The call is very similar to that of the domestic Pigeon.

The soft parts of an adult are:—Irides a narrow ring of orange-yellow; bare skin round eyes, lores, legs and toes crimson-plum-colored; bill dull black. In the young:—Irides nearly white; bill smoky black; legs and toes reddish brown.]

636. TURTUR CAPICOLA.

CC. Table Mt. slopes, Feb. (1); Knysna, Dec. (1); **Z.** Sibudeni, Oct. (2); Jususie Valley, Dec. (1); Umfolosi Station, Aug. (2); **Tv.** Wakkerstroom, Feb., Mch. (3); Zuurbron, Apl. (1).

637. TURTUR CAPICOLA DAMARENSIS.

Tv. Klein Letaba, Aug., Sept. (2); Woodbush, Dec., May (2); **P.** Coguno, June (2); Tete, Sept. (1); **CC.** Klipfontein, Apl. (3).

The Damara Turtle-Dove only differs from the Cape form in its paler colour; the white on the abdomen and forehead is more diffused and of a purer shade. The birds from Klein Letaba and Woodbush are clearly intermediate, as would be naturally expected. The Namaqualand birds are also intermediate, but differ slightly in tinge from both the described forms. The colour of the under parts is more slaty and less pink. These differences are hardly appreciable and do not, in my estimation, warrant subspecific separation. There is no appreciable difference in dimensions among any of the birds.

["Tortel-duif" of the Colonists.

The Cape Turtle-Dove is found commonly and was noted by myself at the Cape Peninsula, the Knysna, Natal, Zululand, the South-Eastern Transvaal, and one specimen was taken in the North Transvaal at Klein Letaba, where it overlaps *T. damarensis* and most probably interbreeds with it. It is a very confiding species, frequenting the plantations and lands near homesteads and native kraals. In company with *T. semitorquatus* it visits cultivated lands in considerable numbers to feed on grain, and at sundown can be seen making for water. It can hardly be considered gregarious, although numbers are seen together, as it is noticed coming and going singly or in pairs.

The soft parts of an adult are:—Irides hazel; bill black; legs and toes pale crimson. In the young:—Irides whitish; bill smoky black; legs and toes brown washed with crimson.]

638. TURTUR SENEGALENSIS.

CC. Klipfontein, Apl. (1); Durban Road, Mch., Sept. (3); **Z.** Jususie Valley, Dec. (2); **Tv.** Klein Letaba, Sept. (3); Woodbush, June (2); **P.** Tete, Aug., Sept. (2).

["Isbulo" of the Zulus.

This species has been observed in Namaqualand, Durban Road, Zululand, the Eastern and Northern Transvaal, and at Tete on the Zambesi. In general habits it greatly resembles *Turtur capicola*, being found commonly in the cultivated lands like that species, but I have not observed it going regularly to water.

The soft parts of an adult are:—Irides hazel; bill black; legs and toes claret.]

639. ŒNA CAPENSIS.

CC. Port Nolloth, July (1); **Tv.** Woodbush, June (1); **P.** Tete, Aug., Sept. (5).

[This little Dove was observed in several localities, but was only taken in three. I have noticed it in addition at Durban Road, Legogot, Pietersburg, and Beira. It was not common anywhere except at Tete, generally a pair or so only being met with. At Tete it was, however, very common and could be seen any day in small parties of three to eight feeding on the ground in the native lands. It is a very confiding little bird and can be easily shot, but unless killed outright it often completely spoils itself when fluttering on the ground. When flushed the flight is at first very erratic, but it is straight and fast when the bird is well on the wing.

The soft parts are :— ♂. Irides hazel; bill crimson-lake, apical half dark yellow; legs and toes crimson. A male from Tete has the bill entirely dark tomato-red. ♀. Bill blackish, otherwise as in male.]

640. TYMPANISTRIA TYMPANISTRIA.

CC. Plettenberg Bay, Mch. (1); **N.** Illovo, Nov. (1); **Z.** Ngoye Hills, Sept., Oct. (1); **P.** Tambarara, Mch. (1).

[A Dove of the forests, never frequenting the ordinary bushveld or sparsely timbered country. I have observed it in the forests of the Knysna district, Zululand, Natal, Masambeti, near Beira, and Gorongoza, but I did not see it in the forests on the Woodbush Hills. Usually met with in pairs it appears to spend most of its time on the ground, where it finds its food. The call is a "coo," but somewhat different from that of the other Doves.

The soft parts of the adult are:—Irides brown; bill reddish brown; legs and toes dark crimson. In the young:—Irides paler, and the bill and legs and toes duller.]

641. CHALCOPELIA AFRA. (Plate I. fig. 1.)

P. Tambarara, June (1 ♂).

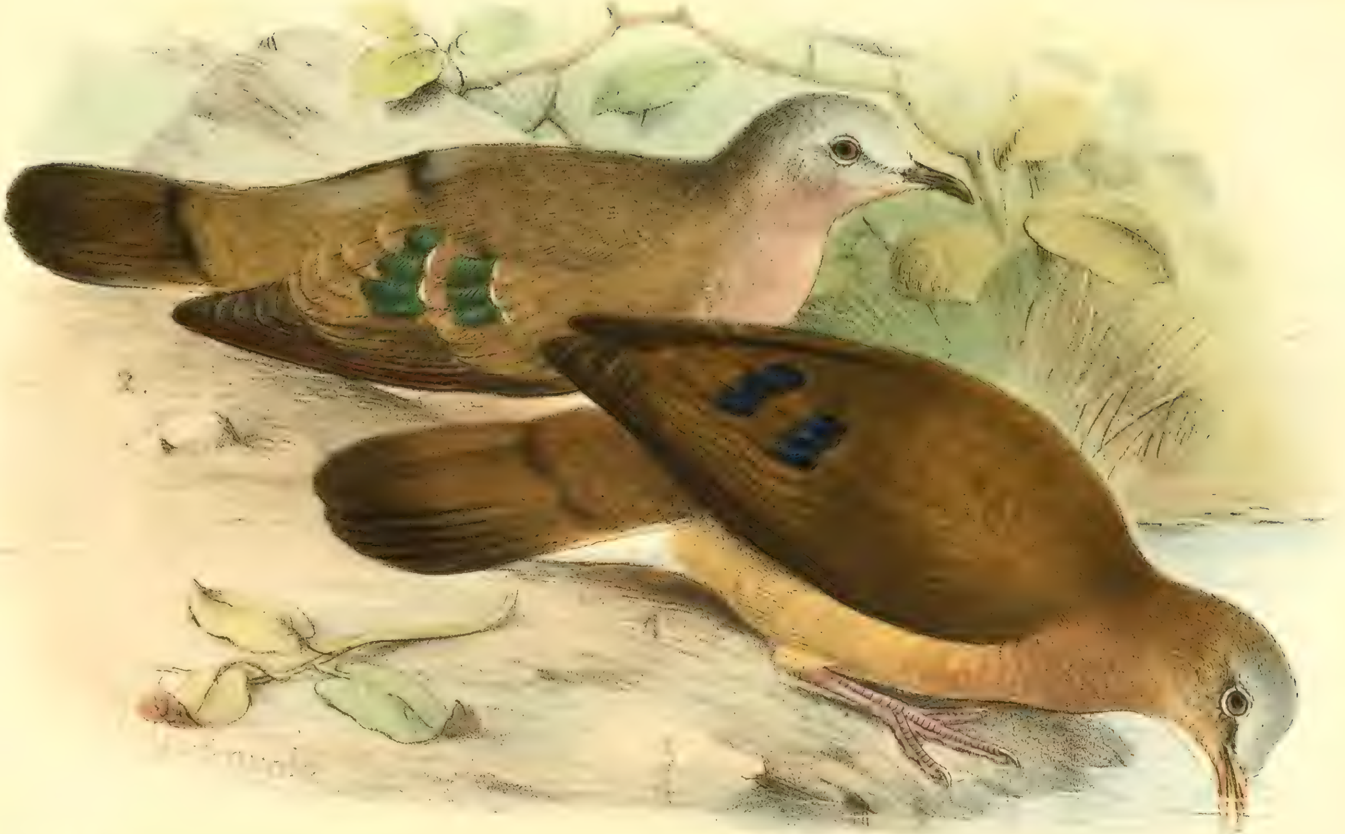
CHALCOPELIA CHALCOSPILOS. (Plate I. fig. 2.)

Reichenow, J. Ornith. 1902, p. 134.

Z. Umfolosi Station, Aug. (1); Hluhluwe Stream, Aug. (2); **Tv.** Klein Letaba, Aug., Sept. (4); Legogot, May (1); **P.** Coguno, June, Aug. (3); Masambeti, Nov. (1); Beira, Feb. (1); Tambarara, June (1); Tete, Sept. (2).

Until comparatively recently, all writers supposed that there was only one species of *Chalcopelia* in Africa; although the fact that some individuals had blue metallic spots on the wing-coverts and others green was well known, this was not considered a specific difference.

In 1901 Erlanger (Ornith. Monatsb. ix. p. 183) wrote that he was of opinion that the blue-spotted and green-spotted



H. Grönvold del.

1. CHALCOPELIA AFRA. 2. C. CHALCOSPILOS.

West, Newman imp.

forms were distinct species, the former occurring in forest districts and the latter in more open "acacia" country.

Erlanger assigned Wagler's name (Syst. Av., Columba, sp. 83, 1827) "*chalcospilos*" to the green-spotted form and Linnæus's (Syst. Nat. 12th ed. p. 284) to the blue-spotted. I am myself a little doubtful how far these names apply. Both seem to be founded on Brisson's "*Turtur senegalensis*." He describes the spots as "viridi-aureo splendentes in violaceum mutantes," and Wagler follows in almost the same words. Linnæus describes the spots as "violaceo-azureæ," but refers only to Brisson's description. However, perhaps it will be best to accept Erlanger's identification.

A little later Sharpe (Bull. B. O. C. xii. 1902, p. 83), Reichenow (J. Ornith. 1902, p. 134), Erlanger (J. Ornith. 1905, pp. 132–135), and Oberholser (P. U. S. Nat. Mus. xxviii. 1905, pp. 841–847) all described new species and subspecies of both the blue- and green-spotted forms.

The following key will perhaps make the present disposition of the genus a little clearer, though I have found it impossible to include the subspecies of *C. chalcospilos* :—

A. Wings with blue metallic spots.
  a. Darker brown above; below dark vinous pink, a strong wash of ochraceous on the abdomen, which contrasts with the white under tail-coverts; bill and legs pale in the skin .... *C. afra.* (Type from Senegal.)
  (West Africa, and Nyasaland to the Zambesi.)
  b. Paler earthy brown above, below pale lilac, no ochraceous on the abdomen.
    *a*¹. Bill and legs yellowish in the skin, throat much the same colour as the breast .... *C. abyssinica* Sharpe.
    (Abyssinia.)
    *b*¹. Bill and legs dusky in the skin (vinaceous in life), throat paling to almost white .... *C. delicatula* Sharpe.
    (Upper Nile.)
B. Wings with green metallic spots, bill dusky in skin (dark red in life); no ochraceous wash on the abdomen .. *C. chalcospilos.*

The following are the named subspecies of *C. chalcospilos* :—

C. c. chalcospilos Wagler. Senegal.
C. c. erlangeri Reichw. Angola.
C. c. volkmanni Reichw. Damaraland.
C. c. caffra Reichw. South Africa.
C. c. acanthina Oberholser. Kilimanjaro.
C. c. somalica Erlanger. South Somaliland.

So far as I am aware, only the green-spotted form was hitherto known from South Africa. There is an example of the Blue-spotted Dove in the British Museum from the Zambesi, obtained by Meller, which agrees very well with Grant's single skin from Tambarara. Anyhow, the Blue-spotted Dove may be considered an addition to the fauna of South Africa.

[" Umgwambasane " of the Zulus.

The Emerald-spotted Wood-Dove is commonly found in all timbered country, and is generally seen feeding on the ground amongst dead leaves or other rubbish. It is usually in pairs, although single specimens are often seen. It perhaps more commonly frequents the bush on the banks of rivers. The call is somewhat similar to that of *T. tympanistria*, but a difference in tone can be noted by one well acquainted with both species.

The soft parts of an adult are :—Irides hazel; bill dark red, tip yellow; legs and toes dull crimson.]

642. Haplopelia larvata.

CC. Table Mt. slopes, Jan. (1); Knysna, Jan. (3); **Z.** Sibudeni, Nov., Dec., Jan. (8); Ngoye Hills, Sept., Oct. (2); **Tv.** Zuurbron, Apl., May (3); Woodbush, Nov. (2).

[" Goo-Goo " at the Cape. " Blad-duifjé " (Leaf-Dove) of the Dutch.

This is essentially a Dove of the woods and forests, and I have found it in the forest on the slopes of Table Mountain, in the Knysna, at Sibudeni and the Ngoye Hills (Zululand), Zuurbron, Wakkerstroom district, and the Woodbush Hills, but it was not met with in Portuguese

East Africa. It is strictly a ground-bird, only pitching on trees and shrubs when alarmed. It is said also to breed on the ground, but I have never succeeded in discovering the nest. The call is "goo," about eight times repeated, the third or fourth note being highest in tone and the last two rather quickly repeated.

The soft parts of an adult are:—Irides plum-coloured; bare skin round the eye crimson; legs and toes dull crimson. In a specimen from the Cape Peninsula the leg and toes are red-brown; and in another from Zululand the irides are red. In the young the irides are yellow and the legs and toes reddish brown.]

645. PTEROCLES BICINCTUS.

Tv. Klein Letaba, Sept. (1); **P.** Tete, Aug. (2).

[I saw this Sand-Grouse at Klein Letaba and at Tete, while it occasionally visited certain dams near Pietersburg. These birds do not appear to be truly gregarious, they are generally found during the daytime lying up in sandy spots in pairs, sometimes three together. They always drink just on or after sundown, and then several are seen coming together, probably having joined company *en route*. At times they must drink later, as on the 3rd of September, 1907, I heard Sand-Grouse coming away from water at 10.30 P.M. Going to and from water they have a curious whistling call, and on rising after drinking, the wings cause that vibrating "whistle" peculiar to the Sand-Grouse.

The soft parts of an adult are:—Irides brown; bare skin round eyes yellow; bill yellowish horn-coloured.]

646. PTEROCLURUS NAMAQUA.

CC. Klipfontein, Apl., May, June (9).

[Namaqualand is the only locality in which I have seen this species since the Central Cape Colony trip. Although Namaqualand is said to be its home, I found it far less plentiful there than in Central Cape Colony. Namaqua Sand-Grouse are distinctly gregarious and are partial to the sandy flats at any altitude. They drink just at sundown, and I believe also at sunrise, not moving far from their resting-places throughout the day.

The soft parts of a male are:—Irides brown; bare skin round eye yellowish; bill slaty.]

647. Francolinus coqui.

Z. Umfolosi Station, June, July (5); **Tv.** Woodbush May, June (13); Klein Letaba, July, Aug., Sept. (4) Legogot, Apl., May (3); **P.** Coguno, Aug., Sept. (5).

[" Shrimpy " of the Colonists. ♂ " Ntendele," ♀ " Hwambi " of the Zulus.

The Coqui is essentially a " bushveld " Francolin, and does not usually inhabit open country. It consorts in small coveys of about half a dozen. The call is a harsh grating note, several times repeated, which might be described as " kuna-kuna-kuna," sharply pronounced, and is often mistaken for that of some kind of Rail and seldom placed by newcomers to the credit of the Coqui. This species is not plentiful in Zululand, where it is only to be found in the low country; but it becomes commoner to the northwards (Inhambane and the Northern Transvaal). It was not seen or heard in the country lying between Beira and the Zambesi. It is very partial to disused native lands and the bases of kopjes. When flushed it seldoms flies far, and can always be marked down, but as it is a great runner it cannot always be again found. A female has the iris brown; bill yellow at the base, black at the tip; feet yellow.]

648. Francolinus sephæna.

Tv. Klein Letaba, July (1); **P.** Coguno, Aug. Sept. (3).

Francolinus granti.

Francolinus granti Reichenow, Vög. Afr. i. p. 496.

P. Tete, Aug. (1 ♂, 1 ♀).

I am inclined to identify the pair of Crested Francolins obtained at Tete with *F. granti*. They are distinctly smaller than the examples of undoubted *F. sephæna* from Coguno, wings 146 ♂, 143 ♀, against 154 ♂ and 149 ♀, and the under tail-coverts are plain ochreous and not barred as in *F. sephæna*; but, on the other hand, the triangular chestnut spots are not confined to the neck, but extend to the breast as in *F. sephæna*. Finally, the lower breast and abdomen are much paler than in either *F. sephæna* or *F. granti*. *F. granti* was first described from Unyamwesi ; it is found throughout East Africa, both German and British, but does not seem to enter Nyasaland. It has not been previously recorded from South Africa.

[" Noygelele " of the natives between Beira and the Zambesi.

Smith's Francolin is one of the most difficult of the genus to secure, and without a good dog is seldom seen. It inhabits the denser thickets and the masses of vegetation and reeds on river-banks. I have often seen it feeding at the edge of the native gardens, but on the first alarm it runs into the long grass and thickets, and is extremely difficult to flush. When flushed it rises rapidly and is very strong on the wing, requiring straight and quick shooting to bring it down. This Francolin will often, on being chased by a dog, take refuge on the big limbs of the forest-trees, and until I discovered this habit I lost many flushed birds, thinking that they had gone away. I have never seen this species otherwise than in pairs, always cock and hen, and it has not, to my knowledge, any call. Nowhere in the south do I think it common, but northwards, especially on the Zambesi, it is quite plentiful.

The soft parts of the adult are :— ♂. Irides dark brown ; bill black ; legs and toes red. ♀. Irides brown ; bill almost black ; legs and toes red.]

Francolinus kirki.

Francolinus kirki Reichenow, Vög. Afr. i. p. 497.

P. Masambeti, Nov. (1).

This example, an adult male, was identified and recorded by Claude Grant (Bull. B. O. C. xxi. 1908, p. 66) as new to South Africa. It matches examples in the British Museum from the river Ruo in Nyasaland, from the Rovuma River (the type of *F. rovuma* G. R. Gray), and from Dar-es-Salaam, and is doubtless identical with *F. kirki* described by Hartlaub from Zanzibar Island. It can at once be distinguished from *F. sephæna* and *F. granti* by the chocolate-brown streaks on the abdomen.

["Nygelele" of the Ntebis.

Kirk's Francolin was only taken in one locality and was there by no means plentiful. It is always found in pairs, and in habits exactly resembles *F. sephæna*.

The soft parts are:—Irides dark brown; bill black; legs and toes red.]

649. Francolinus africanus.

CC. Klipfontein, June (3); Tokai, Feb. (2); **Tv.** Wakkerstroom, Mch. (2).

The specimens from Namaqualand have the chin and throat completely black-spotted, while those from the Cape Division have the central area plain white and only the sides and throat spotted, or, perhaps more correctly, ocellated with white on black.

The birds from Wakkerstroom are again quite different-looking from those of the Cape; they are much more ochreous in general tone, and the lower breast and abdomen instead of bearing the white ocellations on black, so characteristic of the true Cape Greywing, are of a pale fulvous irregularly banded with brown.

I should certainly be disposed to recognise this form as a distinct subspecies, but the series in the British Museum is very incomplete, while the members of this genus are notoriously variable, probably on account of their sedentary habits.

Of the two birds from Wakkerstroom, one is a young male of the year, the other an adult female; a male from Potchefstroom, in the British Museum, agrees with this very well, while an example from the Drakensberg in Natal comes nearer the Cape form; the series from Deelfontein, collected by Grant and Seimund, are all quite typical.

["Greywing" of the Colonists.

This is strictly a bird of the mountains, and, except in the Cape Peninsula, is never seen in country devoid of stones.

It loves the rough boulder-strewn sides and tops of the mountain-ranges, and often congregates in coveys of many dozens. In the early morning and late afternoon the well-known call of "ku-klik, ku-kluu" is heard, being made by the cock perched on some large rock. The "Greywing," like most other Francolins, is an extremely difficult bird to flush. I have myself, without a dog, carefully beaten out patches of country where I have seen birds alight without flushing them. I have not observed this species in many localities outside of the Cape Colony, except in the Wakkerstroom Highlands, and there it was by no means common.]

650. FRANCOLINUS LEVAILLANTI.

CC. Plettenberg Bay, Feb. (1); **Z.** Sibudeni, Nov., Dec., Jan. (4); Jususie Valley, Dec. (1); **Tv.** Wakkerstroom, Mch. (5); Zuurbron, May (2); Woodbush Hills, Nov., Dec. (3); Legogot, May (2).

Two young birds from Wakkerstroom—males, dated March 22nd—only differ from the adults in the black and white patch on the lower throat and the lines on the side of the head, which hardly shew as yet.

["Redwing" of the Colonists. "Etandale" of the Zulus. This Redwing, unlike *F. shelleyi*, is a Francolin of the high uplands, especially open grass country devoid of bush. It is seldom seen in coveys of more than four or six, and often in pairs only. The call is the same as that of the Greywing, but stronger and clearer, and when once the difference is noted they cannot be easily confused. It was fairly common on all the high lands near the Knysna coast-board, the grass-lands of the Wakkerstroom Highlands, the high land above Legogot, and the N'Kandhla (Sibudeni) ridges, but was rather scarce on the Woodbush Hills.]

653. FRANCOLINUS SHELLEYI.

Z. Hluhluwe Stream, Aug. (1); **Tv.** Klein Letaba, Sept. (1); Woodbush, Jan., May, June (14); Legogot, May (2); **P.** Coguno, June (1).

Young birds taken at Woodbush, on May 17 and June 11, hardly differ from the adults except in size, but the markings are not so distinct.

[This is a Francolin of the bushveld, and is never seen in the uplands; in fact, although *F. shelleyi* and *F. levaillanti* occur in the same localities they do not run together, *F. shelleyi* occupying the lower bush-covered country and *F. levaillanti* the bare uplands. Only small coveys of at most half a dozen were seen. The flight is perhaps stronger and more rapid than that of the Redwing, but the call is scarcely distinguishable. This Francolin is particularly plentiful in the Woodbush, at Legogot, and in Inhambane. In Zululand I did not observe it south of the Hluhluwe Stream. I do not think it is known in the country between Beira and the Zambesi.]

655. Francolinus capensis.

CC. Tokai, Feb. (1); Durban Road, Sept. (1).

["Fazant" of the Colonists.

I have only observed the "Cape Pheasant" in the flats and mountains of the Cape Peninsula. It frequents thick bush and scrub, and except in the early mornings and late afternoons, when it is found in the open parts, it is not easy to obtain. It is always in "coveys" of half a dozen or more. The call is harsh and loud, and can be heard at sunrise and sunset, seldom throughout the day.

The soft parts of an adult are:—Irides dark brown; bill dull vermilion, culmen almost black; legs, toes, and spurs dull vermilion.]

656. Francolinus natalensis.

Tv. Woodbush, May (1 ♀).

[The "Natal Pheasant" is fairly plentiful in the Woodbush and at certain spots near the Klein Letaba, but I have not seen it elsewhere. It is essentially a bush-Francolin, frequenting only forest, thick scrub, and bush on hill-sides and in kloofs. It is an exceedingly difficult species to put up, running and skulking in front of a dog, and finally rising well out of shot, if rising at all. The call is harsh and loud, and might be easily mistaken for that of *Pternistes nudicollis*.

The soft parts of an adult are :—Irides brown ; bill orange-red ; legs and toes bright red.]

657. PTERNISTES NUDICOLLIS.

CC. Knysna, Feb. (1 ♀) ; Plettenberg Bay, Mch. (1 ♀ juv.) ; **Tv.** Legogot, Apl. (1 ♀).

The example from Legogot is rather different-looking from that from Knysna. Owing to the increased white on the centres of the feathers of the breast it is altogether a lighter-looking bird.

There is only one example of this species in the British Museum with definite data ; this is a male obtained by Barrett at Lydenburg ; in the white striping it is intermediate between the Legogot and Knysna specimens.

I think that it would be inadvisable to come to any definite conclusions until more material has come to hand for comparison.

[This is also a Francolin of the bush, frequenting the rough scrub and fine bush in the kloofs and river-valleys and the thicker parts of forest-country. In the Knysna District I have seen coveys of this bird of a dozen to twenty. The call is harsh and loud, and is generally heard in the mornings and evenings.

The soft parts of an adult are :—Irides brown ; bare skin round eyes, lores, and throat dull brick-red ; bill much brighter ; legs and toes red. The young bird has the irides brown ; bare skin round eyes, cere, and throat faintly tinged with red ; bill horn-coloured ; legs and toes dull red.]

658. PTERNISTES HUMBOLDTI.

P. Coguno, June, July, Aug. (5 ♂, 2 ♀) ; Beira, Nov., Dec., Feb. (3 ♂, 3 ♀, 1 ♀ juv.).

Four eggs from Coguno taken in August.

The young bird—a male, dated December 18, from Beira—differs chiefly from the adult in the absence of the black patch on the abdomen ; this is mottled black and white, the feathers being white in the centre with irregular black edges; the white ring round the bare throat-patch is also variegated with black shaft-marks.

[" Squari " of the Machopee and Machangaan, and " Iquari " of the Gorongozas and Nyungwis.

I have only seen this species in the Portuguese country, where it is very common. It is, perhaps, more a species of the forest than of the open bushveld, although in many parts, as, for instance, in the Inhambane District, it is found everywhere. It congregates in small coveys up to about a dozen, although pairs are often seen, and even single old cocks. In the early morning and late afternoon they visit native clearings, and at all times are easily flushed with a good dog. The flight is heavy at first, but very strong and fast when the birds are well on the wing, and they generally fly too far to be marked down. I believe that only the cock birds call, and they invariably do so from a tree or large bush. When pointed or followed by a dog they will jump into a bush or tree and completely mystify the animal. The " Iquari " is a great runner, and I have many times seen it, when driving for small buck, run past me without attempting to rise. The call is loud, and can be heard at a considerable distance; it can only be described as " quari," many times repeated. It is from its call that natives name it. It apparently breeds somewhat early, and probably has two or three broods in the year, as I have taken eggs in August and shot young birds in December. The four eggs brought home were found by a native, the nest being a scratched-out hollow in the middle of a thicket filled with leaves and grass. The whole clutch was not brought to me, but the " boy " said they were ten in number.

The coloration of the soft parts is as follows:—*Juv.* Irides brown; bare skin of head and neck dull brick-red; bill horn-coloured; legs and toes bright red. *Adult.* Irides brown, bare skin round eyes, lores, and throat bright red; bill bright red; blackish line on culmen; legs and toes bright red, spurs dusky. The blackish line on the culmen is not constant.]

660. COTURNIX AFRICANA.

CC. Klipfontein, June 12 (1); Knysna, Apl. 2 and 11 (2); **Z.** Sibudeni, Nov. 13 to 24, Dec. 20 (7); Ngoye Hills, Oct. 19–23 (3); **Tv.** Woodbush, Feb. 5 (2).

Some of these Quails, especially a male from Knysna dated April 11, have very pale cheeks and perhaps shew that there has been some admixture of blood with the European bird; but they are all smaller, the wings averaging about 97 mm. against 105, the average in the European form.

["Esgwasha" of the Zulus.

The African Quail has been taken or noted from most localities visited. At certain seasons this Quail is migratory, notably in the spring (October and November), and I have in these months seen enormous numbers on the coast-line of Natal and Zululand. Each flight remains for a few days, and then, presumably, moves northwards. Usually flushed in pairs, the bird is most commonly found in cultivated lands and sugar-cane plantations.

The soft parts of an adult male are:—Irides rich brown; bill dark horn-coloured; legs and toes yellowish. In the female the irides are pale brown, and the bill somewhat lighter.]

661. COTURNIX DELAGORGUEI.

Z. Umfolosi Station, July 1 (1); **Tv.** Woodbush, Dec. 28 to Jan. 31 (8).

Mr. Grant's field-notes confirm the belief which I expressed in the 'Birds of South Africa,' that this Quail is only found in numbers in South Africa during the summer months, especially between December and February.

[In two localities only have I seen this Quail—at Umfolosi Station, Zululand, where a single pair was found and the male taken; and at Woodbush in the Northern Transvaal. Although some eleven months were spent in the Northern Transvaal, it was not till December 28 that the Quail was seen, when a pair or so were flushed, but throughout January it was very plentiful, only an occasional pair being observed after that month. These were undoubtedly on migration, but whether they left for the north or south it was impossible to say.

The soft parts of an adult are:—Irides rich brown; bill black; legs and toes yellowish. In the male from Zululand, which is immature, the base of the lower mandible is paler horn-coloured. In the female the irides are pale brown, and the bill somewhat paler.]

662. EXCALFACTORIA ADANSONI.

Z. Umfolosi Station, July 6 (1 ♀); **P.** Masambeti, Nov. 15 (1 ♂); Beira, Dec. 27 (1 ♂).

A rare species, only known from one or two localities. Sheppard (J. S. A. O. U. v. p. 48) found it not uncommon near Beira.

[" Uguqu " of the Zulus.

This is by no means a common bird, and, in addition to the two localities where specimens were taken, I have only noted it in the Ngoye Hills. At Umfolosi only a single pair were seen, the female being secured; and on the flats near Beira and at Masambeti only some half a dozen pairs were observed altogether. This species, like the other Quails, is always flushed in pairs, and usually frequents grassy plots and hillsides, while I have not seen it in cultivated lands.

The soft parts of an adult male are:—Irides crimson-lake; bill black; legs and toes orange-chrome. The female is similar.]

663. NUMIDA CORONATA.

Z. Umfolosi Station, June (1); **Tv.** Klein Letaba, July (2); Woodbush, June (2).

665. NUMIDA MITRATA.

P. Coguno, June (1); Tambarara, Mch., Apl. (2); Tete, Sept. (1).

The Guinea-fowl of Portuguese East Africa is certainly nearer *N. mitrata* than *N. coronata*; the helmet is more cylindrical and less flattened and also more upright, though hardly vertical and conical as it is in the Zambesi bird in the British Museum obtained by Sir John Kirk.

A young bird from Tambarara, dated March 16, and sexed a female, is at an interesting stage. The crown, which just shews the commencing helmet, is covered by dark brown down with a narrow lighter band on either side. The bill is quite black and the throat whitish; the lappets can just be seen sprouting, while round the lower part of the neck there are a good many lancet-shaped feathers edged with dusky. I have seen no traces of these in the adult. Altogether it is a very different-looking bird.

["Tarentaal" of the Dutch. "Mpongele" of the Zulus. "Mpongele" or "Timongele" of the Machopees and Machangaans. "Nkanga" of the Ntebis, Gorongozas, and Nyungwis.

I have seen or taken this species in every locality visited in Eastern and East-Central South Africa. It is found equally on the high and low veld, but is far more plentiful in the latter, always, however, keeping to country that is more or less bushed. In the mornings and late afternoons the birds are found in flocks of from fifty to sixty on the natives' lands, where they can generally be approached within shot; during the greater part of the day they rest in the forests and thickets. They are also a certain find just at sunrise and again at sundown, when they line down to the rivers to drink. Guinea-fowl apparently keep in flocks throughout the year, so that it is difficult to say in what month they breed, and at no locality was I able to secure eggs, although immature birds were shot in most months. Both the Dutch and Zambesian names are derived from the call, the latter being especially expressive.

In the young birds the coloration of the soft parts is very different from that of the adults. The young have the irides almost white, all the soft parts of the head and neck being dull slaty, and the beak very dark also, entirely lacking any red colour. In the adults the irides are dark brown, bare skin round the eyes almost emerald-green, rest of bare skin of head and neck below the eyes and the base of wattles much duller and darker: throat whitish; round nostrils, crest, crown of head, and tip of wattles bright waxy red ; tip of crest horny red ; bill, at the base dull red, tip pale horn-coloured ; a black line down the nape of the neck.

Judging from specimens I have had in captivity, as the soft parts assume the red colouring, so do the eyes darken.]

666. GUTTERA EDOUARDI.

P. Coguno, June (4) ; Beira, Dec. (2).

Eight eggs taken December 9, at Beira.

["Mpongele" of the Machopees and Machangaans. "Ntoli" of the Ntebis.

I have only seen the Crested Guinea-fowl at Inhambane and Beira ; it was reported by the natives to be found at Gorongoza, but I did not myself come across it. It is much more a bird of the forests than *Numida coronata*, and I have never known it to visit native lands. At Inhambane I have seen flocks of quite twenty individuals, especially when out with natives hunting the Livingstone Antelope. Many are shot by the natives on these hunts with bows and arrows, when they endeavour to run away through the bush without rising. Even in the breeding-season they are gregarious, and on the occasion that I secured the nest I saw three, two of which I got, both being females. I took a nest with eight eggs on the 9th of December, 1906, at Beira, in a thick patch of forest ; it was composed merely of dead leaves, and was situated in thickish undergrowth under an overhanging branch of a shrub, while was very cunningly concealed, as it was impossible to discover it until the hen bird rose on being put out by my dog. At the time I was unable to get a shot at her, and when later in the day I went back, after carefully marking the spot, I was unable to make her out sitting on the eggs, although I stood within a foot or so.

The soft parts of an adult are :—Irides dark crimson ; bill slaty at base, pearly at tip : bare skin on head and neck dull slaty, except for a loose patch of skin immediately under the crest on the nape of neck, which is of a dull white and merges into the slate-colour of the neck on each side under the ears ; legs and toes blackish slaty.]

667. TURNIX HOTTENTOTTA.

CC. Durban Road, Mch., Sept. (3); Plettenberg Bay, Mch. (3).

One of the females from Plettenberg Bay, dated March 23, has only very slight traces of spots on the breast, and can hardly be distinguished from *T. nana*.

["Button Quail" of the Colonists.

This Hemipode was only noted from the Cape Peninsula and the Knysna district; further east and north its place is apparently taken by *T. nana*, although neither can be distinguished from the other on the wing. It was fairly plentiful in the rough grass and short scrub on the flats at Durban Road, but was by no means common in the Knysna District, where it was occasionally flushed from the "fine bush" on the hill-sides. In general habits it exactly resembles the other Hemipodes, and is always found in pairs.

The soft parts of an adult are:—Irides yellow; bill slaty; legs and toes whitish flesh-coloured.]

668. TURNIX LEPURANA.

Z. Umfolosi Station, June (2); **Tv.** Klein Letaba, Sept. (1); **P.** Masambeti, Nov. (1).

[This is the least common of the Hemipodes, and has only been met with on the Eastern and East-Central sides of South Africa. It generally inhabits the long grass on the hill-sides and the outskirts of native lands, often being flushed in the numerous footpaths. It is always in pairs. The flight is not fast, but is erratic and of so short a duration that after being flushed once it is difficult to find again, as it lies very close and often takes to running. On the wing it can often be distinguished from the other Hemipodes by the lighter coloration of the upper side of the wings. I have not heard this bird call.

The soft parts of an adult are:—Irides white; bill slaty; legs and toes whitish flesh-coloured. In the immature bird the lower mandible is somewhat lighter in colour than the upper.]

669. Turnix nana.

Z. Sibudeni, Dec. (1); Umfolosi Station, June, Sept. (4); **P.** Beira, Dec. (1).

["Esgwacha" of the Zulus.

This species was only observed on the eastern side of South Africa, and where observed was fairly common. In habits it resembles *T. lepurana*, frequenting similar situations, and being always flushed in pairs.

The soft parts of an adult are:—Irides bluish white; bill slaty; legs and toes whitish flesh-coloured. In a younger specimen the irides are white.]

671. Crex crex.

Tv. Woodbush, Nov. (1 ♀).

[I have noted the Corn-Crake in two localities only—in the Woodbush Hills, North-Eastern Transvaal, where two individuals were seen, one being secured, and three others were observed during December and January; and on the flats inland from Beira, but none were secured there, although one was shot and lost. I believe this bird does not call in its winter-quarters.]

675. Sarothrura lineata.

Tv. Zuurbron, May (1); Woodbush Hills, Dec. (1).

A rare species in collections. There are only two South African examples in the British Museum. I am not aware that this species has been previously recorded from the Transvaal.

[This species is probably quite common in most localities, but owing to its skulking habits it is extremely difficult to secure. All I saw were flushed by my dog in long grass and sedge in marshy places, but as a rule they rise so close, fly only a very few yards, and drop instantly out of sight, that either one has to blow them all to pieces, which has happened to me on several occasions, or let them go altogether, as I have never been able to flush them a second time. I have noted it also from Umfolosi Station and from Beira.

The soft parts of an adult are:—Irides brown; bill brown, paler at base of lower mandible; legs and toes fleshy brown.]

680. Limnocorax niger.

Z. Umfolosi Station, July (1 ♀).

[" Sosobusi " of the Zulus.

A fairly common Rail in many localities. I have observed it on the lagoons at Umfolosi, Zululand, in the low veld of the Transvaal, the Inhambane district, and the country inland from Beira and Gorongoza. Essentially a bird of the marshes, it is difficult to obtain, and even when shot cannot always be recovered owing to the soft ground it inhabits. It is often seen in pairs, the actions being similar to those of the European Moor-hen. The cry is a single note, "krak," frequently heard when the bird itself is invisible.

The soft parts of an adult are :—Irides rich brown; eyelid pale tomato-red; bill bright greenish yellow; legs and toes pale tomato-red, nails raw umber.]

685. Fulica cristata.

CC. Durban Road, Sept. (2); **Tv.** Wakkerstroom, Apl. (2).

[" Bles hunner " of the Colonists.

This Coot has been observed in every locality visited where suitable ground occurs, from the Cape northwards. In many places where there are extensive vleis filled with dense vegetation, they are very common, but so cunningly do they slip away, often diving and hiding in the vegetation under water, that it is impossible to shoot them. In these situations they breed, but I have never succeeded in finding a nest.]

686. Podica petersi.

CC. Keurboom River, Plettenberg Bay, Mch. (1 ♀); **Z.** Umzincle River, Aug. (1 ♀); Ngoye Forest, Sept. (1 ♀).

As all the specimens taken are females, they afford no assistance towards elucidating the curious variation in the plumage of these birds, discussed by me in in the 'Birds of

South Africa,' vol. iv. p. 275. Nor is much light thrown on the subject by the series in the British Museum. All the South African specimens, except one, match Grant's females and are sexed "female" where there are any data given. The one exception, which is also without data and is merely labelled "S.E. Afr.," is in the plumage described as that of an adult male.

[I have seen Peters's Fin-Foot in three localities, in all of which I secured specimens. It frequents deep narrow streams and rivers well overhung with trees and bushes and with thick vegetation along the banks. In habits it is a great skulker, endeavouring to escape observation by diving and keeping to the thick vegetation and fallen dead trees. It swims low in the water like a Cormorant, the base of the neck and shoulders being as a rule submerged. When one is on the wing crossing from river to river, the flight is extremely fast and straight, resembling that of Teal, but more rapid. This individual also dived straight under the water with hardly any slacking of the speed. The call is a sharp loud and clear cry, somewhat similar to that of the River-Cormorant, but more approaching a shriek. It was its call that first drew my attention to the bird on the Umzinele River. On each occasion that I saw the birds in Zululand there were a pair, but I was only able to secure one of them. The specimen from Plettenberg Bay was shot up the Keurboom River and was apparently solitary.

The coloration of the soft parts is as follows:—Irides silvery brown; bill fleshy at base and on the lower mandible; legs and toes rich orange, nails flesh-coloured.]

690. Otis ruficrista.

Tv. Klein Letaba, July, Aug. (4 ♂, 3 ♀).

["Bush Knorhaan" of the Colonists.

This is strictly a Knorhaan of the "bush-veld," and is always found in the more thickly wooded parts, such as extensive patches of mopani. It is generally observed in pairs, and when flushed rises rapidly. The flight is remarkably fast and erratic, making difficult though pretty shooting. This species has a curious habit of running along the numerous native footpaths, and many fall victims to the traps set in these places for cats and mongooses. The only call I have heard is low, which, however, is audible several hundred yards away; the cry is very deceptive, as it often sounds close when the bird is really quite a distance off. This Knorhaan was very plentiful at the Klein Letaba, and several pairs were seen near Coguno in the Inhambane district; but I did not observe it anywhere from Beira northwards.

The soft parts of an adult are:—Irides dark hazel; bill blackish horn-coloured, yellowish at the base and on the lower mandible; legs and toes dirty dull yellow.]

692. OTIS AFROIDES.

Tv. Pietersburg, Mch. (1 ♂).

[“Cackling Knorhaan” of the Colonists.

I have only seen this Knorhaan in the Zoutpansberg district of the Transvaal, where it inhabits the high open uplands which extend for many miles around Pietersburg. It is quite the noisiest of the Knorhaans; on being disturbed it flies round in a wide circle with measured beats of the wings, and with the feathers of the head and nape puffed out, calling loudly “kakketeekak-kak-kak,” continually repeated. In the early morning and late afternoon it often calls when on the ground, but the cry is then generally confined to the single syllable “kak.” When calling on the ground the head is jerked back and the feathers of the head, especially of the crown, successively more fully raised each time the cry is uttered.]

697. OTIS MELANOGASTER.

Z. Jususie Valley, Dec. (1); Umfolosi Station, June, July (9); Somkele, Aug. (2); **Tv.** Klein Letaba, July, Aug., Sept. (6); Legogot, Apl. (1); **P.** Masambeti, Oct. (1).

[“Silent Knorhaan” of the Colonists. “Efumba” of the Zulus. “Gundia” of the Ntebis.

The Silent Knorhaan was found very common in the coast country of Zululand and in the low parts of the Transvaal, and it was fairly abundant at Legogot. I only once saw it on the high veld of Zululand, and it was by no means common at Beira, and I did not observe it in the Zambesi country. Two or three pairs were observed in the Inhambane district. This Knorhaan is certainly a bush-country bird, never being seen on the high grassy uplands. It is always in pairs, and is very partial to the great dry vleis filled with long grass. On being flushed out of shot, it does not fly far and can nearly always be found again. The flight is slow and floppy, and when the bird rises within shot it is not easily missed. In Zululand it seemed very fond of locusts, and could be seen in vast numbers following the swarms, often becoming so gorged that it could hardly fly and preferred to run and hide. This bird is truly called "Silent," as I have never heard it call.]

700. Otis barrowi.

Z. Umfolosi Station, July (1 ♂).

["Gagalu" of the Zulus.

Barrow's Knorhaan was only once observed, at Umfolosi Station, where a pair were seen and the male secured. When on a short trip a few miles north of the Hluhluwe Stream for wild dogs I saw it in quite fair quantities on all the grassy hill-sides, but it was so wild that no specimens were taken. It appears to frequent the long grassy slopes sparsely dotted with small shrubs and trees, and was generally put up in threes. I did not hear this bird call either on the wing or on the ground.]

702. Œdicnemus capensis.

CC. Plettenberg Bay, Mch. (3); **Z.** Umfolosi Station, July (2); **Tv.** Wakkerstroom, Feb. (1); Klein Letaba, Aug. (1).

["Dikkop" of the Colonists.

This species was common at Plettenberg Bay, and at Umfolosi in Zululand, but not very plentiful at either Wakkerstroom or Klein Letaba. I also saw it in the Cape Peninsula, but was unable to secure specimens. It is quite a nocturnal bird, resting throughout the day in the hollows and small valleys, each bird lying on the shady side of tufts of grass or small scrub. Several are always found together, and I have noticed that they are invariably in the same spots day after day unless greatly disturbed. On being flushed they often utter a single clear whistle. They seldom fly more than a hundred yards or so, when they alight and run to cover. It is, however, difficult to approach them within shot when they have once been disturbed.

Irides and eyelid yellow; bill black, yellow at base; legs and toes greenish yellow; blackish on the front of the tarsi and the upper surface of the toes.]

703. ŒDICNEMUS VERMICULATUS.

P. Beira, Jan. (1).

[" Mtoti " of the Ntebis.

I have seen this Thick-knee only once, and that was in the flat country covered with stretches of forest seven miles from Beira, on the railway. Its small size and darker coloration as it rose at once shewed me that it was a Thick-knee I had not previously seen, and after following it up for some distance I was lucky in getting in a very long, fatal shot. It was solitary.

The coloration of the soft parts were :—Irides and eyelids pale yellow ; bill black, yellowish at base ; legs and toes greenish yellow.]

705. CURSORIUS RUFUS.

Tv. Wakkerstroom, Mch., Apl. (5).

[I have not noticed this species elsewhere than in the locality where the specimens were obtained. There it was fairly plentiful, and was always observed in threes or fours, frequenting barren open stretches practically devoid of any vegetation. The cry and flight are similar to those of *C. temmincki*.

The soft parts of an adult are :—Irides brown; bill nearly black; legs and toes white enamelled.]

706. CURSORIUS TEMMINCKI.

Z. Umfolosi Station, July 2 and 6 (2).

[" Isibongo " of the Zulus.

I noticed Temminck's Courser in the Klein Letaba, the Inhambane district, Beira flats, and Tete, besides the Umfolosi Flats, whence specimens were obtained. I have only seen it in pairs, and it is generally found frequenting more or less open places where the grass has been burnt off. The flight is somewhat erratic, and it usually flies some two hundred yards, when it settles and runs; occasionally, however, it goes right away. On being flushed it utters a single sharp note several times repeated. On the veld it can be easily distinguished from *C. rufus*, not only by its smaller size, but by the rufous and black on the belly, which can be seen for a considerable distance when the bird is facing the observer.]

707. RHINOPTILUS AFRICANUS.

CC. Klipfontein, Apl. (1).

[This Courser is apparently always found in dry desert country, as I have observed it only in Namaqualand since the termination of the Deelfontein trip. Even in Namaqualand very few were seen.]

709. RHINOPTILUS CHALCOPTERUS.

P. Tambarara, May 27 (1).

[I have only twice noted this Courser—once in Beira Harbour, and when the specimen was taken in Gorongoza. This was put up on the main road in open forest country; it was at first observed running up the road, and on being approached rose and was shot. In flight it is very similar to *Stephanibyx coronatus*, and might by a casual observer be overlooked for that species.

The soft parts are:—Irides brown; eyelid dark yellow; base of bill and legs dark coral-red.]

712. GALACTOCHRYSEA EMINI.

Claude Grant, Bull. B. O. C. xxi. 1908, p. 93.

P. Tete, Sept. 16 (1 ♀).

This bird was previously obtained on the Zambesi by Boyd Alexander; he procured examples at Mesanangwe and Zumbo in 1898.

[The only specimen sent was shot sitting at the edge of the water on a sand-bank in the middle of the Mazoe River, and until I picked it up I did not recognise it as being a Pratincole. It was solitary, and I have not seen the bird on any other occasion.

The soft parts are:—Irides hazel; base of bill, legs, and toes tomato-red.]

713. ACTOPHILUS AFRICANUS.

P. Beira, Dec. (1).

[I have only observed this Jacana on the eastern side of South Africa; notably on the lagoons at Umfolosi in Zululand, on the Tsende River in the low country of the Eastern Transvaal, in the Inhambane district, and the lakes on the flats inland from Beira. It is usually seen running about on the half-submerged grass and water-plants, sometimes solitary, more often in pairs. The flight is slow and close to the surface of the water, the long legs being held behind. The cry is a single note which may be described as "zwit," uttered both on the wing and when settled, accompanied each time by a slight fleck of the wings.

The soft parts are:—Irides dark brown; forehead and bill lead-blue, tip of bill greyer; legs and toes slate-coloured.]

716. LOBIVANELLUS LATERALIS.

Z. Umfolosi Station, Aug. (3).

[I have observed the Wattled Plover at Umfolosi in Zululand; a pair was seen on the banks of the Biashispla, North-East Transvaal, on the 20th of September, 1905; while it was common in pairs and threes on all the sandbanks in the Zambesi River in August 1907, on my trip from Tambarara to Tete. Although I was at Umfolosi from June, this Plover did not make an appearance till August, when the three secured were observed, no others being seen afterwards. The flight is slow and Peewit-like, often encircling the intruder like that of *Stephanibyx*, but it is always out of gunshot. I have never observed this Plover away from water.

The soft parts of an adult are:—Irides pale grey; eyelid yellowish; lores and bill greenish yellow, tip of bill black; upper wattles dull red, lower lemon-chrome; legs and toes greenish yellow.]

719. Hoplopterus armatus.

Tv. Klein Letaba, July, Aug. (2); **P.** Tete, Aug. (1 imm.).

[I have only seen this species in the low country of the Transvaal, in Beira Harbour, and near the Zambesi on the Mazoe and Luenya Rivers. It is generally observed in pairs; the cry is sharp and clear, and exactly resembles the clink made by striking a piece of iron on a stone. The first time I heard the call on the Klein Letaba I thought that it was the sound of a native hammering his assegai straight, and it was many seconds before I realized that it was the call of this Plover.

The irides are crimson-lake; the beak, legs, and toes black.]

720. Stephanibyx coronatus.

Z. Umfolosi Station, July (3).

["Kiewitje" of the Colonists.

The Kiewitje is most commonly found in high country and always frequents open plains or grass-lands. I have observed it in Namaqualand, near Pietersburg, in the high country at White River, and on the flats at Umfolosi Station, Zululand. At the last locality it was found consorting with the following two species. It is by no means shy; generally on being disturbed it flies round in circles, often well within gunshot, and at the same time advises the countryside that there is an intruder about. The colonial name is derived from the call.

The soft parts of an adult are:—Irides yellow; bill dull crimson, tip black; legs and toes red.]

721. Stephanibyx melanopterus.

Z. Umfolosi Station, June, July (7).

[This bird was very common on the Umfolosi Flats, being found in company with *S. coronatus* and *S. inornatus*, both of which it resembles in general habits and cry.

The soft parts are:—Irides pale yellow; base of bill and legs dark crimson.]

722. STEPHANIBYX INORNATUS.

Z. Umfolosi Station, June, July (2); **P.** Coguno, June (1).

This is a rare, or perhaps little noticed, species in South Africa. The only South-African example in the British Museum is one given to Seebohm by Mr. H. Millar, of Durban. It had been once previously obtained by Wahlberg in "Caffraria," and was described by Sundevall under the name of *C. frontalis.*

[This Plover in life exactly resembles *S. melanopterus*, and, except for its smaller size, which is hardly noticeable, it cannot be distinguished from that species. I have noted it from the Umfolosi Flats, where it was fairly common; from the Inhambane district, where it was occasionally observed on open spots on the Inyamatanda and Inyasuni Rivers; while either this species or *S. melanopterus* was once or twice seen on the Beira flats.

The soft parts are like those of *S. melanopterus*, but the bill and legs are very much darker.]

728. ÆGIALITIS TRICOLLARIS.

CC. Durban Road, Sept. (1); Knysna, Apl. (1); **Z.** Umfolosi Station, Aug., Sept. (2); **Tv.** Klein Letaba, July, Sept. (3); Pietersburg, Mch. (1); **P.** Tete, Sept. (1).

["Amaseya" of the Zulus.

The Three-banded Plover frequented every river, dam, and pool of water in every locality visited. Although several may be observed round the same water, I think that it is a solitary species, except in the breeding-season, when it is found in pairs.

The soft parts of an adult are:—Irides rich yellow; eyelid orange; base of bill yellow; legs and toes greyish yellow.]

730. ÆGIALITIS MARGINATA.

CC. Port Nolloth, Sept. (5); Plettenberg Bay, Mch. (1); **N.** Illovo, Nov. (6).

731. ÆGIALITIS MARGINATA TENELLA.

P. Tete, Sept. (1 ♂, 1 juv.).

The White-fronted Sand-Plover of East and South-East Africa must be, I consider, referred to *Charadrius tenellus* Hartl., originally described from Madagascar. It does not seem to have anything to do with *Charadrius pallidus* Strickl., from Damaraland, the type of which, now in the Cambridge Museum, I have been allowed to examine by the kindness of Dr. H. Gadow. This is a very pale bird with no tawny about it. The wing measures 100 cm. and the tarsus, which seemed to me very long, about 28 cm,, as compared with 95 and 22 in *Æ. m. tenella.* On the other hand, as in the "*tenella*" race and in the West African species, the inner secondaries are dark brown slightly edged with white. The West African form will probably be quite a recognisable race when sufficient good material has accumulated in the Museum to make a satisfactory comparison.

[This is the Common Sand-Plover of all the coast localities visited, but except in the Zambesi region it was not observed on any of the inland rivers. I have always noted it on sandy stretches, and in habits it resembles *Æ. hiaticola*; the cry is also somewhat alike, but lower in tone.

The soft parts are :—Irides brown; bill blackish; legs and toes grey-flesh-coloured.]

735. RECURVIROSTRA AVOCETTA.

CC. Durban Road, Sept. (1).

737. NUMENIUS PHÆOPUS.

CC. Plettenberg Bay, Mch. 23 (1 ♀); **P.** Inhambane, Sept. 25 (1 ♀).

[The Whimbrel is common in most of the harbours round the coast, especially in the summer season. In Inhambane and Beira Harbours I have seen it in flocks of from twenty to thirty, but when in such numbers it is usually very wild. The call is a whistle, generally, but not always, repeated seven times.]

741. Totanus glareola.

Z. Umfolosi Station, Sept. 14 (1); **Tv.** Klein Letaba, Oct. 1 (1); Turfloop, Mch 22 (1); **P.** Masambeti, Nov. 6 (1); Tete, Sept. 20 (1).

[I have more often noted the Wood-Sandpiper than either the Green or Common Sandpiper. It frequents every river, stream, dam, or rain-pool, and is remarkably tame and easy to secure. It usually arrives about the end of August, and returns north about the end of March or middle of April.]

742. Totanus ochropus.

P. Beira, Jan. 29 (1).

[I have only occasionally noted the Green Sandpiper at some of the shaded streams and water-holes during the summer season. The flight is fast and erratic, and the call is a sharp whistle. Both single birds and pairs have been observed.]

744. Totanus hypoleucus.

Tv. Klein Letaba, Sept. 30, Oct. 1 (4); **P.** Masambeti, Nov. 8 (1); Tete, Sept. 2 (1).

[This Sandpiper is commonly found on all the rivers throughout the summer season, arriving in September and leaving about March. I have noticed it more on the broad sandy rivers than on the smaller streams, and often several were feeding along the edge of the water within a few yards of each other. On these rivers I have had excellent opportunities of watching winged birds endeavouring to escape by diving, swimming usually for ten to fifteen yards close to the bottom with the wings partially spread. When shot close to reeds or grass, on being approached they instantly dive and are always lost in the vegetation.]

748. Tringa minuta.

CC. Durban Road, Sept. 19–25 (5); **N.** Illovo, Nov. 6 (1).

[I have observed this species in most of the coast localities touched at, and also in the "Msuugwi" plains in the

Gorongoza district. It is always found in large or small flocks, and its habits are similar to those of birds of the same species on our own coasts.]

749. TRINGA SUBARQUATA.

CC. Port Nolloth, Sept. 4 (1); Durban Road, Sept. 25 (1).

The bird from Port Nolloth still retains a good deal of chestnut speckling on the chest, the remnants of the breeding-plumage.

751. GALLINAGO MEDIA.

P. Masambeti, Nov. 13 (3); Beira, Jan. 29–31 (2).

["Isikwekwekwe" of the Zulus. "Stesesi" of the Ntebis.

The Great Snipe can usually be distinguished from *G. nigripennis* on the wing by its comparatively lighter colouring and its much slower flight. At Masambeti it was much more plentiful than the other species. This Snipe on being flushed always calls. Near Beira I flushed them after heavy rain on the open grassy flats.]

752. GALLINAGO NIGRIPENNIS.

Z. Umfolosi Station, Aug. 29 (1); **Tv.** Zuurbron, May 27–31 (2); **P.** Masambeti, Nov. 15 (1).

The Umfolosi specimen is a young bird; it has a short bill, measuring 2·6 in. (=66 mm.), and is less brightly coloured than the adult, so that it might at first be taken for *G. media*. It has, however, the tail-feathers spotted, and two other characters by which this species can be distinguished from *G. media* are as follows:—In *G. media* the axillaries and under wing-coverts are very regularly barred with black and white, the two colours being equally distributed; in *G. nigripennis* the black barring is quite irregular and the white prevails as a ground colour. In *G. media*, again, the blackish stripe running from the base of the bill to the eye is narrow (about 3 mm.) and ill-defined. in *G. nigripennis* it is broader (about 6 mm.) and much more clearly defined.

["Stesesi" of the Ntebis.

At Wakkerstroom and Zuurbron this Snipe was fairly plentiful, but was by no means common near Beira. I have also observed it in marshy ground near Legogot, East Transvaal. From *G. media* it can always be distinguished on the wing, not only by its darker appearance, but by its much quicker flight. *G. nigripennis* does not always call on being flushed. It occasionally strikes the telegraph wires, and I had a bird brought to me by a native near Beira on Jan. 28, 1907, that had broken its wing by contact with the wire.]

754. LARUS DOMINICANUS.
CC. Port Nolloth, Sept. (1 juv.).

745. LARUS HARTLAUBI.
CC. Port Nolloth, Sept. (1).

II.—*Notes on the Ornithology of Corsica.*—Part III.

By the Rev. FRANCIS C. R. JOURDAIN, M.A., M.B.O.U.

[Continued from Vol. v. p. 458.]

90. PRUNELLA COLLARIS (Scop.). Alpine Accentor.

Prunella collaris tschusii Schiebel, Orn. Jahrb. xxi. p. 102 (1910—Corsica).

Resident, confined to the higher peaks during the summer and descending to lower ground during the winter months. Dr. Schiebel describes the upper surface of a male and of a female as being darker than in Balkan specimens, and the dark markings on the back as being much broader and more deeply coloured than in continental birds. He found them haunting the mountain-tops, broken by snowfields, at about 5500 ft. and upwards, in the middle of the island in June, and obtained the type on Monte d'Oro. Dr. Parrot also found a female in the market at Ajaccio on January 24. Further comparison seems to be needed before this form can be accepted.

91. PRUNELLA MODULARIS MODULARIS (L.). European Hedge-Sparrow.

A common winter visitor from the Continent, and probably also resident in small numbers. Wharton found it haunting low cover on the hills to the west of the island, but not on the east side or at Corte; while Backhouse and Parrot found it common near Ajaccio in winter, though Whitehead only noticed a few at that season. Parrot thinks it possible that the shorter-winged (66 and 68·5 mm.) and darker-backed specimens obtained may belong to a resident race, but further evidence is required. We did not meet with the bird at all in summer.

92. TROGLODYTES TROGLODYTES KOENIGI Schieb. Corsican Wren.

Troglodytes troglodytes koenigi Schiebel, Orn. Jahrb. xxi. p. 102 (1910—Corsica).

Local names: *Mucchiaiolo*, *Muraiolo* (Giglioli).

A common resident, especially in the mountain forests and in the hill-villages, from 2000 to 3500 ft. It differs from the continental form in the colder earthy brown of the upper side and lacks the rusty tinge of European birds, besides being more distinctly barred. A nest inside a deserted cottage in the mountains contained six eggs on May 20, while others were still empty, and Whitehead obtained eggs on June 11, but Parrot found an almost completed nest on March 22. Possibly some of the winter birds on the low ground may be immigrants (*cf.* Orn. Jahrb. 1910, p. 215).

93. CINCLUS CINCLUS SAPSWORTHI Arrig. Corsican Dipper.

Cinclus cinclus sapsworthi Arrigoni, Atlante ornitologico, p. 150 (1902—Corsica). *Cf.* Sapsworth, Bull. B. O. C. xi. p. 12 (Oct. 1900).

Local names: *Merlo acquaiolo*; *Merlo pescatore* (Giglioli).

Resident on the mountain-streams in Corsica and Sardinia; a few being found on most of the east coast streams, while, according to Giglioli, it is abundant on the Tavignano, Restonica, and Orta near Corte. It closely resembles the Scandinavian form, having the under side below the white throat uniform chocolate-brown, but the crown and nape are lighter and more grey in tone, and the wing is, as a rule, much shorter. Nothing has been recorded as to the breeding-habits of this race. In mid-May I came across a pair haunting some very broken ground in a ravine at about 2500 ft., but though I explored much likely ground I failed to find any trace of the nest.

94. Cinclus cinclus meridionalis Brehm. South-European Dipper.

A winter visitor, once recorded. Hartert (Vög. pal. Fauna, i. p. 791) gives a single winter bird from Corsica (Whitehead coll.) as belonging to this race.

95. Chelidon rustica (L.). Swallow.

Local names: *Rondina* (Giglioli); *Rundulla* (gen.).

A very common summer visitor to all the low ground, but not ranging very high in the mountains, where it is replaced in the hill-villages by the House-Martin. Many individuals, of course, only visit the island on passage. First arrival noted on March 14 (*Wharton*); March 16, 1883, and March 22, 1884 (*Whitehead*); March 28 (*Parrot*). Full clutches may be found by the middle of May. Jesse notes that the colour of the breast varied from pure white to pale chestnut in a flock near Lake Biguglia on April 17. A few were seen on passage south by Whitehead on November 16.

96. Hirundo urbica (L.). House-Martin.

Local names: *Curiancola* (Giglioli); *Rundulla* (gen.).

Another very common summer resident and passage migrant. It breeds in numbers in the towns on the low ground, and also in the hill-villages among the mountains. Dates of first arrival: March 14 (*Wharton*); March 20, 1883, and March 21. 1884 (*Whitehead*); March 29, 1910 (*Parrot*).

97. Riparia riparia (L.). Sand-Martin.

A passage migrant in small numbers, which apparently does not stay to breed. Arrives early in April: first noted April 11, 1883, and April 8, 1884, by Whitehead, and not observed after the time of passage. Giglioli saw birds on the autumn passage between Ajaccio and Cargese on October 5.

98. RIPARIA RUPESTRIS (Scop.). Crag-Martin.

Local name: *Rondina* (Giglioli).

Not an uncommon resident, but subject to local movements according to the seasons. During the summer months, and up to December, according to Wharton, it haunts the mountains, and is generally to be met with in flocks, hawking near some sheltered and sunny clump of rocks. On raw and misty days it will descend almost to the plain even in summer, and from December to April small parties and pairs may often be met with near the coast. It breeds in colonies among the mountains, and is very common in the great gorge between Ghisoni and Ghisonaccia. Here Playne noticed building going on in April, and Whitehead found fresh eggs on May 13. Of two specimens obtained by Parrot in winter, one was much darker than the other, and he suggests that the lighter-coloured birds may eventually prove to be winter visitors from the Continent. Arrigoni's *Cotile obsoleta sarda* ('Avicula,' 1902, p. 103), which was described from a winter bird, is evidently a very light-coloured Crag-Martin.

99. APUS MELBA (L.). Alpine Swift.

A summer resident in small numbers in the mountains, occasionally descending to the plains; Whitehead first noted it on April 25, 1883, and April 10, 1884, while Playne met with it on April 10. Early in June Whitehead found it nesting in inaccessible rocks in the mountains. On two occasions I met with this species on the east coast: on May 10 a single bird was flying with the Common Swifts, and on May 29 Read and I noticed five hawking over the coast-road from Ghisonaccia to Bonifacio.

100. APUS APUS KOLLIBAYI Tsch. South-European Swift.

Apus apus kollibayi Tschusi, Ornithol. Jahrbuch, xiii. p. 234 (1902—Dalmatia).

Local names: *Sbira*, *Spirlo* (Giglioli); *Spiro* (north), *Strione* (south).

Swifts are exceedingly common summer residents in Corsica, and are as much a feature of the landscape in the high mountain-forests as in the towns near the coast. The time of their arrival is noted by Whitehead as April 12, 1883, and April 8, 1884, while Wharton saw plenty after April 15, and Playne records it as seen on April 19. Parrot notes that a specimen from Ajaccio agrees closely with two other South-European skins, and ascribes them to this distinctly white-chinned race. Although in the towns these Swifts build in sites similar to those adopted by our English birds, and occasionally in crevices of the rocks among the mountains, many pairs have taken to breeding in the Great Spotted Woodpeckers' holes in the pine-forests. Whitehead observed them entering these holes; and while taking my first nest of Whitehead's Nuthatch from a dead pine, I flushed a Swift from a nest with three eggs in a Woodpecker's hole about 20 ft. below the Nuthatch's nest, and some 35 ft. from the ground. On another occasion a newly made Woodpecker's hole proved to contain a broken Woodpecker's egg, some days old, and a fresh Swift's egg, thus furnishing strong circumstantial evidence that the Swift sometimes ejects the Woodpecker. Average size of four Corsican eggs, 24·42 × 16·55 mm.; max. 25·3 × 16·7, min. 23.9 × 16·5 mm.

101. CAPRIMULGUS EUROPÆUS MERIDIONALIS Hart. South-European Nightjar.

Caprimulgus europæus meridionalis Hartert, Ibis, 1896, p. 370 (South Europe and N.W. Africa).

Local names: *Buccaccio* (Giglioli); *Notulo.*

A fairly common summer resident. Parrot ascribes two Corsican specimens to this race with some hesitation, and remarks on the distinct rusty-yellow ground-colour of the under surface, smaller size (wing 185 and 187 mm.), &c. Whitehead heard the note on May 12, and found the first eggs on May 28. Corsican eggs taken by Whitehead are decidedly smaller than those of the ordinary form. Average size of eight eggs (seven measured by Hartert and one by the writer), 29·28 × 20·73 mm.; max. 31 × 20 and 30 × 21·8, min. 27·8 × 20 mm. British eggs average 31·5 × 22·28 mm.

102. MEROPS APIASTER L. Bee-eater.

Local names: *Maduraiolo* (Giglioli); *Taragiola* (south), *Barbarotolo*.

A common migrant on passage, considerable numbers remaining to breed in the low ground on the east side of the island, especially in the south-east, and in the Campo de l'Oro. Whitehead noted the first arrivals on April 19, 1883, and April 14, 1884, but in the north-east Wharton saw none till April 30. In Corsica the nesting-burrows are not made in steep banks, but generally in almost level ground, the entrance being made in the side of some shallow depression. Whitehead describes the tunnels as about 9 ft. long, but those which we opened were about 5 ft. long and were made in exceedingly hard ground. We found the first full clutch of seven eggs on May 29. The nests examined by Whitehead on June 4 all contained full sets of from five to seven eggs, very dirty and half-buried in beetles' wings, &c., "a moving mass of small maggots and various kinds of lice."

[*Coracias garrulus* L. Roller. No record of this conspicuous species in Corsica appears to exist, and it is evidently scarce in Sardinia, although it might be well expected to occur on passage.]

103. UPUPA EPOPS L. Hoopoe.

Local names: *Pappagallo* (Giglioli); *Galeto di Marzo* (north), *Pupugia* (south).

A fairly common summer resident in the lower ground, but not ascending to any height in the mountains. Dates of first arrival: March 24, 1883, and March 30, 1884 (*Whitehead*); March 27, 1910 (*Parrot*). The breeding-season seems to be rather irregular. I found a nest with four fresh eggs deep down in an olive stump on May 9; while Whitehead obtained a clutch of six fresh eggs from a stone wall on May 27, and found four full-grown young in a nest in an old tree on June 7. Parrot remarks that the wing-measurement of a male from the Camp de l'Oro is small (146 mm.).

104. ALCEDO ISPIDA L. Kingfisher.

A winter visitor in fair numbers to the sea-coast and the mouths of the rivers from November (*Wharton*) to February (*Parrot*); but, according to Whitehead, it begins to get scarce after the end of January.

[*Picus viridis* L. Green Woodpecker.

Included in Giglioli's list on the authority of Professor Combe, of Corte, who states that it occurs occasionally in the island and that he has killed a specimen. This record requires confirmation.]

105. DENDROCOPUS MAJOR PARROTI Hartert. Corsican Great Spotted Woodpecker.

Dendrocopus major parroti Hartert, Orn. Monatsb. xix. p. 191 (1911—Corsica).

Local names: *Pichiu* (Giglioli); *Pichiarone* (north), *Pichiu* (south).

In the great-pine forests on the mountains, more especially from 2000 to 4000 feet, this species is a common resident, often working down to the coast in winter, according to Whitehead. We also found a few pairs breeding among the cork-oaks and olives on the plains on the south and east sides of the island, but there it is far from numerous. The Sardinian resident form was described by Arrigoni under the name of *D. major harterti* ('Avicula,' vi. p. 103, 1902), and Corsican specimens agree very closely with this race, but differ from it in some small particulars, the beak being longer and more slender, and the wing slightly longer (133–139 mm.). Parrot (Ornith. Jahrbuch, 1911, p. 27) ascribes a female obtained in the market (in winter) to the Central-European form. The breeding-season is variable: Whitehead found his first eggs on May 20, but we came across newly-hatched young on May 18 and May 24 at about 3000 ft., and also obtained fresh eggs from May 18 to 26 in the same district, while in the plain we heard the young squeaking in the nest on May 23. The number of eggs in the clutch varies from three to five. Average size of nineteen Corsican eggs, 27·12 × 19·7 mm.; max. 29·5 × 18 and 27 × 20·6, min. 25·5 × 20 and 29·5 × 18 mm.

106. Iynx torquilla tschusii Kleinschm. Sardinian Wryneck.

Iynx torquilla tschusii Kleinschmidt, Falco, iii. p. 103 (Sardinia—1907).

Whether the Wryneck is a resident in Corsica, as it is in Sardinia, or is only a winter visitor in fair numbers to the south of the island and probably also a passage migrant, is not yet definitely known. It has been recorded from the Ajaccio district and in the market, late in November (*Wharton*), in January, February, and the first days of March (*Backhouse, Trevelyan, and Parrot*) : while Whitehead only records two in January, and Wharton shot one, evidently on passage, on April 15 at Biguglia in the north-east. Even if the Wryneck proves not to be resident in the mountains of Corsica, it is quite possible that the short-winged birds with darkly barred under surface are winter immigrants to the southern plain from the Sardinian mountains.

107. Cuculus canorus kleinschmidti Schieb. Corsican Cuckoo.

Cuculus canorus kleinschmidti Schiebel, Ornitholog. Jahrbuch, xxi. p. 103 (1910—Corsica).

Local names : *Cucc* (Giglioli) ; *Cucu.*

A common summer visitor to all the lower ground on the island, and in smaller numbers also to the pine-forests; first noted on April 21 by Wharton, on April 15, 1883, and April 4, 1884, by Whitehead, and on April 15 by Playne. Corsican specimens not only have the upper side darker but are also shorter-winged (*cf.* Parrot, Orn. Jahrb. 1911, p. 26). Whitehead took five eggs from nests of the Subalpine Warbler on May 17 and at other dates, and on May 21 we obtained eggs from nests of the Subalpine and Sardinian Warblers.

108. Athene noctua (Scop.). Little Owl.

Giglioli describes this species as "Non rara e sedentaria"; but it is not even mentioned by any other observer, and we saw nothing of it. Further evidence is desirable, especially as it might naturally be expected to occur, and is common in Sardinia.

109. Asio otus (L.). Long-eared Owl.

Whitehead records one example brought in by a man on December 18.

110. Asio flammeus Pontopp. Short-eared Owl.

A rare winter visitor: Wharton saw one specimen on April 17, lately shot at Biguglia, and Whitehead shot one on December 13.

111. Otus scops (L.). Scops Owl.

Scops scops tschusii Schiebel, Ornitholog. Jahrbuch, xxi. p. 102 (1910—Corsica).

Local names: *Cercaricchiola, Malagella* (Giglioli); *Cioccio.*

A common summer resident after the end of March, according to Whitehead, breeding not only in the low ground, but at a height of more than 3000 ft. in the mountains. Schiebel distinguishes it from the continental form by the more distinct clay-yellow tone, especially about the throat of the male, but Parrot finds that this character is not constant. The breeding-season is at the end of May: Whitehead took a clutch of four eggs, three much incubated and one nearly fresh, on June 3. We found two eggs in a hole of a cork-oak on May 21, and single eggs (one laid by a captured bird) were brought to us on May 23 and May 30. The monotonous note, repeated at regular intervals all the evening, is one of the most characteristic sounds of Corsican village-life. Jesse found this bird in the Bastia market, partly plucked to shew the fat!

112. Tyto alba alba (Scop.). [*Strix flammea* auct.] White-breasted Barn-Owl.

Strix ernesti Kleinschmidt, Ornith. Monatsber. ix. p. 163 (1901—Sardinia).

Local name: *Malagella.* Resident in small numbers on the east and south sides of the island on the lower ground, and, according to Parrot, haunting the little mortuary chapels which are so common in the island. An example was brought in alive to Whitehead by a boy on May 15; on May 16 I came across the remains of a distinctly white-breasted bird, and on the evening of May 24 one flew within a few yards of us. We also heard the well-known shrieking note occasionally at night. Parrot obtained three specimens near Ajaccio in February and March, and gives a minute description of the differences in plumage. A male from Corsica was even whiter than Sardinian birds.

113. Falco peregrinus brookii Sharpe. Mediterranean Peregrine.

Falco brookei Sharpe. Ann. & Mag. Nat. Hist. xi. pp. 20, 222 (1873—Sardinia).

Local name: *Falco.* A few pairs of Peregrines breed on ledges of the precipitous rocks along the coast-line, and one or two pairs may also be met with among the mountains inland. Giglioli includes both *F. peregrinus* and *F. punicus* in his list, and ascribes the birds from the interior to the former race, but as he did not obtain specimens and Wharton's record almost certainly refers to the Mediterranean form, *F. peregrinus peregrinus* may be deleted from the list pending further evidence. Eyries also exist on the islets in the Straits of Bonifacio, as well as on Elba, Monte Christo, &c. Whitehead found a nest with three nearly-fledged young on May 14, 1883. In 1884 a different site contained young about a week old on April 16, so that the eggs must have been laid early in March. A skin from Corsica in the Tring Museum, dated October 15, has all the characteristics of the Mediterranean race: wing 11¾–12 in.

114. Falco subbuteo L. Hobby.

Giglioli saw one near Corte on October 7.

115. Falco eleonoræ Géné. Eleonoran Falcon.

Whitehead saw a pair of large dark-coloured Hawks several times, hovering about the sea-coast, from April 15 onwards, but was unable to shoot them. Martorelli states that this species is found in Corsica. Well-known colonies exist on Toro and Vacca, off the coast of Sardinia.

116. Falco regulus Pall. Merlin.

Giglioli records this species as seen in September and October in the neighbourhood of Bonifacio. Backhouse also saw a Hawk, apparently of this species, at Bocognano in winter.

117. FALCO TINNUNCULUS L. Kestrel.

Local name: *Falcheto.* Resident, but not in large numbers, and also a winter immigrant from the Continent. Although so plentiful during the winter on the low ground, only a small proportion stay to breed, nesting in rocks and ruined towers, &c. Whitehead took a clutch of six fresh eggs on April 29, and we obtained fresh and hard-set eggs on May 30, perhaps of second layings.

118. AQUILA CHRYSAËTOS (L.). Golden Eagle.

Local names: *Acula* (Giglioli); *Agula.*

A resident in the mountains, still surviving in small numbers. Jesse notes that two shot near Corte were both decidedly smaller than the usual type. Whitehead visited two eyries in the mountains, and saw this Eagle once or twice within a hundred yards, but was unable to shoot it. One eyry, though empty, had been renovated with fresh pine-tops on June 12. Some of the feathers of an immature bird, including the characteristic tail-feathers, were still preserved in a house that we visited in 1908, though the bird had been shot several years previously. On May 20 I was able to examine an eyry which had evidently not been occupied that year, and on the same day we twice saw one of the old birds, which on one occasion came sailing with motionless wings over the pine-trees above us. Another site was reported to be inaccessible, and as it was late in the year we did not visit it.

119. BUTEO BUTEO ARRIGONII Picchi. Sardinian Buzzard.

Buteo buteo arrigonii Picchi, Avicula, vii. p. 40 (1903—Sardinia).

Local names: *Falco* (Giglioli); *Buzaio* (south).

Still a fairly common resident, though apparently reduced in numbers since Whitehead's time, when six nests were found by him on rocks along the coast in April within quite a limited area. Signora Picchi has separated the Sardinian and Corsican form on account of its smaller size and reddish-brown colouring (*cf.* also Brooke, 'Ibis,' 1873, p. 150). At the present time a few pairs breed on the rocky coasts, and here and there may be found nesting high up in the mountains. The clutch usually consists of two eggs, which are laid about the middle of April.

120. Haliaëtus albicilla (L.). Sea-Eagle.

A winter visitor to the south of the island and the lagoons on the east coast, while possibly a pair may be resident, as the bird has been observed late in the spring, and it is known to breed in Sardinia. Whitehead found it not uncommon on the lagoons in winter, preying on the wild fowl, and saw one bird often in April and May. Arrigoni states that it probably also breeds in Corsica. Parrot records a pair, one of which was a fully adult bird with white head, seen on February 21, 1910, circling high over the Campo de l'Oro.

121. Nisaëtus fasciatus (Vieill.). Bonelli's Eagle.

Giglioli saw an immature bird on September 26 near Porto Vecchio, and Schiebel also states that he recognised this species in 1910.

122. Circus æruginosus (L.). Marsh-Harrier.

A common winter visitor to the low ground, occasionally on the south-west, and more generally on the east side of the island: a few pairs remaining to breed in the swamps. Whitehead saw one as late as June 21, but did not find the nest.

123. Circus pygargus (L.). Montagu's Harrier.

Whitehead records an individual seen on November 17.

124. Circus cyaneus (L.). Hen Harrier.

A winter visitor and apparently also on passage. Wharton records two or three seen on the west side in winter, and Whitehead noted a passage on April 14. Five were seen on the wing at the same time, besides a few at intervals throughout the winter. Jesse obtained a specimen from near Lake Biguglia.

125. Circus macrourus (S. G. Gmel.). Pallid Harrier.

Giglioli records a specimen seen between Ajaccio and Sagone.

126. Astur gentilis arrigonii Kleinschm. Sardinian Goshawk.

Astur gentilis arrigonii Kleinschmidt, Ornithol. Monatsberichte, xi. p. 152 (1903—Sardinia).

Giglioli saw a young bird near Zicavo on September 21, and I met with an individual on the wing in a pine-forest at about 3000 ft. elevation in May, and saw a large nest in a very tall pine which may have belonged to this species. Kleinschmidt has separated the Sardinian form (to which in all probability Corsican birds also belong) on account of its smaller size and darker colouring; and Brooke ('Ibis,' 1873, p. 151) remarks that two Sardinian males weighed only 1 lb. 6 oz. and 1 lb. 4 oz.

127. Astur nisus wolterstorffi Kleinschm. Sardinian Sparrow-Hawk.

Accipiter wolterstorffi Kleinschmidt. Ornitholog. Monatsberichte, xi. p. 168 (1901—Sardinia).

Local name : *Falcheto.* Resident in small numbers, both in the low ground and also in the mountain-forests. Whitehead notes that it is common in November, but less so in the other winter months, so that possibly immigrants from the Continent also occur on passage. Kleinschmidt has distinguished the Sardinian bird on account of its smaller size, darker mantle, and the closer and thicker barring of the under surface.

An egg was brought in to Whitehead on June 6, and on May 29 I found a female sitting on a slightly incubated clutch of four eggs in an alder growing in a swampy piece of wood. The nest was about 15 ft. from the ground and the eggs, which had a pronounced blue ground, averaged 38·8 × 31·9 mm. ; max. 39·7 × 32, min. 38·3 × 32 and 38·6 × 31·7 mm.

128. Milvus milvus (L.). Red Kite.

Local name : *Filancio.* A fairly common and widely distributed resident in the plains and lower hills, but not plentiful anywhere. Playne once saw four on the wing together, probably attracted by the presence of carrion, and occasionally one may be seen soaring over the outskirts of the seaport towns. Whitehead failed to discover a nest, but we found a large young bird in grey down in a nest in a very large isolated pine near the coast on May 11, and saw a recently occupied nest, from which two eggs had been taken on the previous day, on May 16. This was probably a second attempt to breed.

129. PERNIS APIVORUS L. Honey-Buzzard.

Only recorded by Giglioli, who saw one on October 9 near Barghetta.

130. PANDION HALIAËTUS (L.). Osprey.

Local name: *Agula di Mare.* Although rarely allowed by the fishermen to breed, the Osprey is still a not uncommon resident in Corsica. In winter it is to be found on most of the lagoons along the east coast, and Backhouse noticed a pair haunting the Gulf of Ajaccio in the winter of 1890–91, but Parrot failed to find it there in 1910. Its breeding-places are the isolated rocks, sometimes only a few hundred yards from the shore. Whitehead found one such nest with three eggs on May 16, 1883, on a low rock, to which he was able to wade, and in the following year he took a clutch of three eggs from the same nest on April 23. In 1908–09 I visited three nesting-places, all at varying heights on isolated rocks. One nest was a huge structure of sticks and rubbish thrown up by the sea, but the others were very slight and carelessly built. As a rule, the eggs are broken by the fishermen, but we obtained one clutch of two eggs, and subsequently two clutches of one and two eggs respectively were sent to us.

131. VULTUR MONACHUS (L.). Black Vulture.

Giglioli records an individual seen at Porto Vecchio on September 26.

132. GYPS FULVUS (Gm.). Griffon Vulture.

On May 23 R. H. Read and I had an excellent view of a Griffon soaring over a lagoon on the east coast. It passed overhead, and all the time that it remained in sight was bullied by a Mediterranean Herring-Gull, which pursued it with loud outcry. The light sandy colouring of this bird rendered any confusion with *Vultur monachus* impossible, though the latter species is said to be the commoner of the two in Sardinia, where, however, both breed. If the western form, *G. fulvus occidentalis* Schlegel, proves to be distinct, as I believe to be the case, Corsican specimens will probably belong to this race.

133. GYPAËTUS BARBATUS (L.). Bearded Vulture.

Local name: *Altore* (Giglioli). A scarce resident, still surviving in very small numbers in the mountains. Whitehead saw the bird once or twice in mid-March, and also found the remains of one which had been shot, in the possession of a schoolmaster. Giglioli also records it as scarce, but resident in the lofty mountains in the middle of the island, and Parrot saw a very light-breasted individual on March 21, 1910, over the gorge of Porto (Spelunca). A quill-feather of this species was also picked up and brought to Schiebel in 1910.

134. CICONIA CICONIA (L.). White Stork.

A scarce visitor on passage only. Whitehead saw an example on April 2, which was gone by the next morning. On May 14, a curiously late date, two of these birds rose from one of the islands of the east coast where they had been resting, and made their way slowly to the mainland of Corsica.

135. CICONIA NIGRA (L.). Black Stork.

Giglioli saw two near Porto Vecchio on September 26.

136. EGATHEUS FALCINELLUS (L.). Glossy Ibis.

Giglioli states that he was assured at Bonifacio that this species was observed there almost regularly on both passages. Further evidence is required.

137. ARDEA CINEREA L. Common Heron.

Resident in small numbers, while probably a few also arrive in autumn to pass the winter. It occurs in low ground on both sides of the island in winter, chiefly, however, on the east coast. Whitehead saw a few as late as April 25, and suspected that they bred, while we met with a pair or two in the lagoons throughout May, and a nest with two young birds was reported to us from a marsh on the east side in the spring of 1909.

138. ARDEA PURPUREA L. Purple Heron.

Whitehead met with this species commonly on the east coast from April 14 to 27, but not afterwards.

139. EGRETTA ALBA (L.). Great White Heron.

Wharton saw an example at Biguglia on April 30.

140. EGRETTA GARZETTA (L.). Little Egret.

Whitehead met with two of these Egrets on April 19, one of which he shot; the other stayed on till April 28.

141. ARDEOLA RALLOIDES (Scop.). Squacco Heron.

An occasional visitor in spring. Wharton shot one at Biguglia on May 15; Whitehead saw another on April 25; and I flushed one from a marsh on the east coast on May 10. Two days later, hearing that an "Eagle" had been shot and eaten at a village some eight miles distant, I managed to collect enough feathers to enable Dr. Hartert to state definitely that they also belonged to this species, and not to *Bubulcus ibis*, as I at first supposed.

142. NYCTICORAX NYCTICORAX (L.). Night-Heron.

Occurs on passage. Whitehead noted the arrival of a flock of eight on April 11, and more arrived subsequently till fourteen were present. None, however, were seen after April 23. Parrot obtained a young female from near Sagone on May 10, a date which suggests the possibility of its breeding.

143. IXOBRYCHUS MINUTUS (L.). Little Bittern.

Wharton mentions having seen a living specimen, taken near Bastia about mid-April.

144. BOTAURUS STELLARIS (L.). Bittern.

Only recorded in the winter months. Wharton states that it is not at all common; two females were shot at Biguglia on March 17. Whitehead records it as seen on December 13 and 14, while one was sent in to him on December 23.

145. PHŒNICOPTERUS ROSEUS Pall. Flamingo.

An occasional straggler. It was accurately described to Whitehead by many natives; Giglioli records one killed at Porto Vecchio in March 1877, and Parrot obtained a male in full plumage from the Campo de l'Oro on April 3, 1910.

146. ANSER FABALIS (Lath.). Bean-Goose.

Whitehead saw a flock of wild Grey Geese (sp. ?) on both visits to the east coast; none, however, stayed after the beginning of March and no specimens were obtained. Jesse describes the Bean-Goose as a not very plentiful winter visitor: he records it in the flesh, shot near Lake Biguglia, and Giglioli also mentions it as a winter visitor.

147. TADORNA TADORNA (L.). Sheld-duck.

Giglioli says that this species has been described to him as of frequent occurrence at Bonifacio, but adds that he has not seen it himself.

148. ANAS PLATYRHYNCHA (L.). [*A. boschas* auct.] Wild Duck.

Resident in the marshes, and also a winter visitor. Wharton and Whitehead both state that it breeds in Corsica; the latter adds that young were first out on April 27. The absence of Ducks in summer from many of the lagoons on the east side which seem well adapted to them is, however, very noticeable.

149. ANAS STREPERA L. Gadwall.

Winter visitor to the lagoons. Whitehead shot one on February 11, but found the bird difficult to distinguish among the swarms of birds on the lagoons in winter; Jesse also shot one at Lake Biguglia, and Parrot obtained a drake from the Ajaccio market on February 17. Probably not uncommon.

150. ANAS CRECCA L. Teal.

Common winter visitor to the marshes on the south and east side, and not infrequently met with in the Ajaccio market.

151. ANAS QUERQUEDULA L. Garganey.

Wharton shot a specimen in the Campo de l'Oro on January 26, and Whitehead found it common between March 5 and April 18, after which date it was not noticed. He shot three males on March 22.

152. ANAS ANGUSTIROSTRIS Ménétr. Marbled Duck.

Parrot recognised an individual of this species in the Ajaccio market on February 17, 1910, but, as it was in bad condition, did not preserve it.

153. ANAS PENELOPE L. Wigeon.

A winter visitor, occurring in small numbers only in the south-west, but common on the east coast lagoons. Wharton shot a drake in the Campo de l'Oro on March 27, while Backhouse and Parrot both record the bird from the Ajaccio market in January and February. Giglioli met with this species at sea between Isola Rossa and San Fiorenzo on October 11, and Whitehead describes it as plentiful through the winter up to the beginning of March.

154. SPATULA CLYPEATA L. Shoveler.

A winter visitor. Whitehead first records this species on November 30, and saw a few individuals at intervals during the winter, but towards the end of February and the beginning of March they became plentiful, evidently on passage. Parrot records a drake in the Ajaccio market on February 17.

155. DAFILA ACUTA (L.). Pintail.

Whitehead describes the Pintail as common on the east coast lagoons in February and March. Several shot were young males, just changing plumage. Parrot records two from the Ajaccio market on February 17, and saw a flock of seven adult drakes on March 1 flying over the Gravone.

156. **Nyroca rufina** (Pall.). Red-crested Pochard.

Giglioli was informed that examples of this species had been taken in winter at Porto Vecchio. Further evidence of its presence is desirable.

157. **Nyroca ferina** (L.). Pochard.

Winter visitor; possibly a few breed. Whitehead describes it as very plentiful in February and the beginning of March, and Parrot records two adult females from Ajaccio on February 4. On May 11, I saw about a dozen ducks on a secluded marsh on the east coast, and was able to identify at least two drake Pochards among them.

158. **Nyroca fuligula** (L.). Tufted Duck.

A common winter visitor to the east coast marshes. Wharton saw thousands there in winter, and considerable numbers still remained at the end of April, but on the west side he saw none. Whitehead found it more common on rush-covered ponds than in the lagoons. Backhouse and Parrot record it from the Ajaccio market in January. There appears to be no record at present of the White-eyed Duck, *Nyroca nyroca* (Güld.), but it probably also occurs among the flocks of ducks which haunt the east coast marshes in winter.

159. **Nyroca marila** (L.). Scaup.

Whitehead found the Scaup fairly common in winter and shot a drake.

160. **Nyroca clangula** (L.) Goldeneye.

Whitehead saw two females in December and February; and small parties of males, from four to eight in number.

[**Oidemia** sp? Scoter.

Whitehead observed one of the Scoters, either *O. nigra* or *O. fusca*.]

161. **Erismatura leucocephala** (Scop.). White-headed Duck.

Apparently resident in small numbers. Wharton saw one example on Lake Biguglia, and Whitehead shot a drake on

April 14. On May 7 he found two drakes and three ducks on the same pond; the drakes were chasing one another and going through their peculiar courting performances, with every feather of the tail expanded to the utmost, like a hand with all the fingers spread out. On May 28 they were still in the same place and were probably breeding there.

162. MERGUS SERRATOR L. Red-breasted Merganser.

Occasional winter visitor. Wharton shot one in the Gulf of Ajaccio on December 4; Whitehead saw a few pairs on the west coast from November to the end of January, and Backhouse saw one between Ajaccio and the Isles Sanguinaires in January.

163. MERGUS ALBELLUS L. Smew.

One female shot on Lake Biguglia was brought in the flesh to Jesse.

[To be continued.]

III.—*On the Birds of Mauritius.*

By Captain R. MEINERTZHAGEN, Royal Fusiliers, M.B.O.U.*

(Text-figure 1.)

DURING a twelve months' stay in Mauritius I had opportunities of visiting all parts of the island and of examining the bird-life. This is of great interest, containing as it does the remnants of a peculiar insular fauna, pelagic wanderers from the South Seas, migrants from the snows of Arctic Europe, and numerous species introduced from Europe, Asia, and Africa.

Nearly all the indigenous birds are now confined to forest and undeveloped land. None of these fast vanishing species have adapted themselves to sugar-cane fields or human

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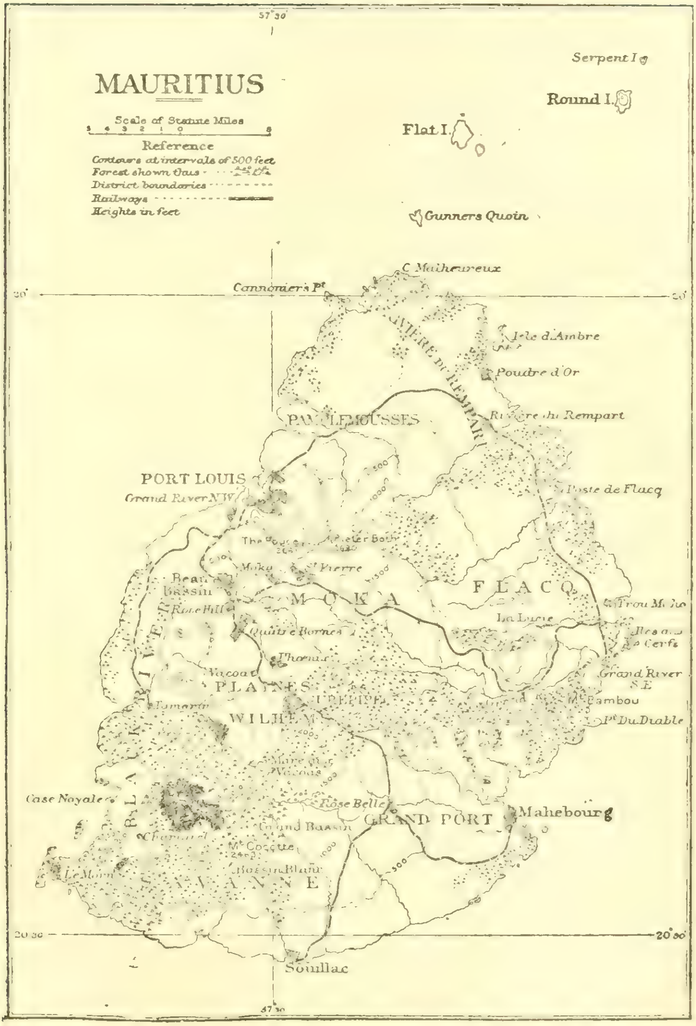
* This paper does not include those birds that became extinct more than a hundred years ago.

Text-fig. 1.


57°30'
MAURITIUS
Scale of Statute Miles
5 4 3 2 1 0 5
Reference
Contours at intervals of 500 feet
Forest shown thus
District boundaries
Railways
Heights in feet
Serpent I.
Round I.
Flat I.
Gunners Quoin
C. Malheureux
Cannonier's Pt.
20°
Isle d'Ambre
Poudre d'Or
RIVIÈRE DU REMPART
Rivière du Rempart
PAMPLEMOUSSES
PORT LOUIS
Grand River N.W.
Poste de Flacq
The Pouce
Pieter Both
Moka
St. Pierre
Beau Bassin
Rose Hill
MOKA
FLACQ
La Lucie
Trou Mocho
Iles aux Cerfs
Quatre Bornes
Phoenix
Grand River S.E.
Vacoa
PLAINES WILHEMS
CUREPIPE
Mt. Bambou
Pt. Du Diable
Tamarin
BLACK RIVER
Mare aux Vacoas
Case Noyale
Rose Belle
GRAND PORT
Mahebourg
Chamarel
Grand Bassin
Mt. Cocotte
Le Morne
Bassin Blanc
SAVANNE
20°30'
Souillac
57°30'

Sketch-map of Mauritius.

habitations, whilst nearly all the introduced species have shunned the forests and wilder parts of the island.

It is a peculiar fact that all the proved native birds of Mauritius should be so confiding. Without one single exception they are ludicrously tame. Also nearly all of them have a sad plaintive note, and even their alarm-note is more a cry for mercy than a scream of terror. The song of the Merle or Coq de Bois, or the mournful cooings of the Pigeon des Marres, all express sadness, and heard in the dense forests of Mount Cocotte or in the Black River gorges, they make one curse the civilization that has brought such birds to the verge of extinction.

Although human agency is responsible for the extirpation of most of the Mauritian species, it cannot be held to be directly so. The ravages of pig, monkey, and mongoose must bear the full blame of such thorough and wholesale destruction.

For centuries the Mauritian birds have habitually sought their food in the wild forests which formerly clothed the whole island. As these have receded, so have the birds. Pigs and monkeys, introduced in the 16th century by the Portuguese, and the mongoose, recently brought in, have also become accustomed to make their homes in the forest, as much for convenience as for safety's sake. The pig has succeeded in extirpating all the ground birds, such as the Ground Parrot, and the monkey is now hard at work on the arboreal species. Even so long ago as 1801, Grant, in his 'History of Mauritius,' says: "The birds very much diminish in the woods, as the monkeys, which are in great numbers, devour the eggs."

In the following list I give the French or Creole names as used in Mauritius. I have marked with an asterisk those birds that have been introduced, and at the end I append a list of the species protected by law.

I wish here to express my thanks to both Monsieur Emmerez de Charmoy and Monsieur Hart, of Mauritius, for the frequent help they have given me in identifying the species and in other ways.

1. FALCO PEREGRINUS.

Falco communis Sharpe, Cat. Birds, i. p. 376.

Peregrine Falcon.

A single specimen of this Falcon was killed many years ago in the month of December after a hurricane. The skin is now at Cambridge (*Oustalet*).

Monsieur Carrié, of Mauritius, thinks that he saw a bird of this species in 1910 near Mahébourg.

2. FALCO CONCOLOR.

Falco concolor Sharpe, Cat. Birds, i. p. 405.

The Newton Collection at Cambridge contains a specimen killed at Mahébourg.

3. TINNUNCULUS PUNCTATUS.

Cerchneis punctata Sharpe, Cat. Birds, i. p. 434.

Kestrel. Mangeur de Poules.

This Kestrel is fairly well distributed throughout the island. It is peculiar to Mauritius, but has wandered to the neighbouring island of Bourbon, where it has been shot. It is not very shy of man.

Its habits of hovering and its noisy cries during the breeding-season seem identical with those of the English Kestrel. One observed near the Morne was seen to seize a shrew-mouse (an introduced species).

4. * CORVUS SCAPULATUS.

Corvus scapulatus Sharpe, Cat. Birds, iii. p. 22.

On three occasions has this Crow been introduced from either Madagascar or Africa, but it has never gained a foothold and has now ceased to exist. It probably never stood a chance against the local gunner, who kills every bird he can, whether game or not.

In Grant's 'History of Mauritius' (1801) we read: "Several couples of ravens had been let loose in the woods, to destroy the rats and mice, of which there remain but three males. The inhabitants accused them of devouring their chickens."

5. * CORVUS SPLENDENS.

Corone splendens Sharpe, Cat. Birds, iii. p. 33.

Indian Jackdaw.

I have seen two pairs of this species in Port Louis. They were introduced from India two years ago, but do not seem to thrive.

6. LALAGE RUFIVENTER.

Lalage rufiventer Sharpe, Cat. Birds, iv. p. 101.

Merle Cuisinier.

In former days this Shrike was plentiful in the forests and hills of Mauritius, and, as its French name denotes, was an object of attention to the fowler, who could call it to him.

It only occurs now in the south-west corner of the island. I saw a pair in the Canaka Forest in October 1910. They were very tame, and uttered an alarm-note not unlike the usual screech of our Jay. A magnificent cock which I saw on Mount Cocotte in February 1911 was singing a melodious song in a bush.

An old nest shown me by a forester as belonging to this species was a clumsy construction of lichen, coarse grass, roots and twigs, placed about fourteen feet from the ground.

7. TROCHOCERCUS BORBONICUS.

Trochocercus borbonicus Sharpe, Cat. Birds, iv. p. 302.

Coq de Bois.

This beautiful Flycatcher is to be seen in suitable localities throughout the island, but its numbers have been sadly diminished of late years. In the Pamplemousses gardens they are fairly common. They are never to be found far from large trees or thick bushes and seem to prefer wild guava, mango, camphor, and other densely foliaged trees. They have a plaintive cry as an alarm-note, a scolding hiss when annoyed, and an extremely pleasant song, very low but very sweet.

On Mount Cocotte and near Grand Bassin they are fairly plentiful and very tame.

8. IXOCINCLA OLIVACEA.

Ixocincla olivacea Sharpe, Cat. Birds, vi. p. 46.

Le Merle.

A species peculiar to Mauritius and rapidly becoming extinct. When this bird was plentiful it was considered a delicacy, and at shooting-parties a dish of forty or fifty "Merles" was no uncommon sight.

They are extremely foolish birds and must have been very easy to kill. I was told by an old forester that a man with a hair noose at the end of a stick could snare them as they sat singing on a branch.

They make a very untidy nest of about the size of that of a Thrush, or less, of dead leaves, grass, and moss, lined with fine grass.

They are now practically confined to the forest in the south-west of the island and are fairly plentiful and very tame round Mount Cocotte. They fly up into a bush as the passer-by walks along a forest path, and sing quietly but beautifully within a few feet of him. Their note is sad and plaintive. Their alarm-note is like the coarse "jack" of a Jackdaw, if one can imagine the noise transposed to such a delicate-looking bird as Le Merle.

The cock bird is made very conspicuous by his yellow bill.

9. * PYCNONOTUS JOCOSUS.

Otocompsa jocosa Sharpe, Cat. Birds, vi. p. 157.

Boulboul.

Red-vented Bulbul.

This species was introduced in 1892 by Gabriel Regnard from Indo-China and has since increased at a terrific rate. It is now (1911) widely distributed all over the island and rears several broods a year. It is a scourge to the gardener and fruit-grower, and Mauritians regret the day when it was introduced. Its pleasing note and fascinating manner cannot fail to charm its worst enemy.

This species is a pure insect- and fruit-eater, and has probably largely accounted for the decrease of such birds as *Zosterops*.

There are two albinos of this species in the Port Louis Museum.

10. Zosterops chloronota.

Zosterops chloronota Gadow, Cat. Birds, ix. p. 193.

Yeux Blancs.

Zozo Fit-Fit.

This species is now a rare bird in the island and is confined to the forests of the south-west corner. I saw a single specimen near Curepipe in January 1911 and three others near Bassin Blanc in February 1911. They were all ridiculously tame.

The nest is cup-shaped and built of moss and grass with an occasional feather.

The call-note, which is the only one I ever heard, is not unlike the "chirp" of a young Sparrow.

There is an albino of this species in the Port Louis Museum.

11. Zosterops mauritiana.

Zosterops mauritiana Gadow, Cat. Birds, ix. p. 194.

Oiseau Blanc.

Oiseau Manioc.

This bird is generally distributed throughout the island and usually goes about in small family parties. The white rump is very noticeable and gives a ready clue to the species.

It is very tame and inquisitive. A mouse is quite sufficient to cause tremendous excitement. I have seen five of these birds "mob" a mouse in much the same way as Tits will "mob" an Owl. They got into a perfectly insane condition, whilst the mouse lost his head and squealed as only a Mauritian shrew can. The whole episode was very comic.

The call-note appeared to be a loud chirp, which is uttered frequently on the wing. The restless movements and jerky flight reminded me of our Long-tailed Titmouse.

There is an albino of this species in the Port Louis Museum.

12. PHEDINA BORBONICA.

Phedina borbonica Sharpe, Cat. Birds, x. p. 122.

Grosse Hirondelle.

These Swallows were formerly very abundant, but were almost completely killed off during the cyclone of 1861. They are now reduced to a few colonies and never stray far from the coast.

At Case Noyale they are fairly common and there is a large colony near Beau Champ on the south coast of the island. They were breeding in January 1911.

This species will probably increase to its former abundance, as it is not persecuted by local gunners.

13. * PASSER DOMESTICUS.

Passer domesticus Sharpe, Cat. Birds, xii. p. 307.

Le Moineau.

House-Sparrow.

The Sparrow was introduced into Mauritius comparatively recently. The story goes that a British soldier brought a single pair out from home with him as a souvenir of the old country, but that he died at Port Louis and on his dying request the birds were liberated.

They are now numerous all over the island, but have a bleached dull appearance compared with the English bird.

14. * SERINUS CANICOLLIS.

Serinus canicollis Sharpe, Cat. Birds, xii. p. 350.

Serin du Pays.

Introduced over one hundred years ago from South Africa.

It used to be very plentiful in cultivated parts, but after the cyclone of 1892 the bird completely disappeared and is now extinct in Mauritius. It is still, however, plentiful in Réunion and will probably be reintroduced to Mauritius.

15. * SERINUS ICTERUS.

Serinus icterus Sharpe, Cat. Birds, xii. p. 356.

Serin du Cap.

Cape Canary.

Imported from Cape Colony by the French in the 18th century.

A French writer (Le Gentil), writing in 1780, says :—"It was imported from the Cape of Good Hope during the last war, partly as an experiment and partly as a present to the ladies. It is one of the most pernicious presents ever made to the island, as it eats all the crops and increases without effort."

Another writer (Sonnerat) says that niggers had to be kept in the fields to frighten the flocks of these birds away, and that every inhabitant had to kill a certain quantity of them in proportion to the number of slaves he had, and take their heads to the local police station.

The species is now plentiful in the low-lying coast lands, but cannot maintain a footing up country, as there is very little food for it there.

It is a common cage-bird in the island.

16. * Pastor roseus.

Pastor roseus Sharpe, Cat. Birds, xii. p. 63.

Rose-coloured Pastor.

This bird was introduced into the island from India in 1892 by Gabriel Regnard, but died out almost at once.

17. * Acridotheres tristis.

Acridotheres tristis Sharpe, Cat. Birds, xiii. p. 80.

Le Martin.

Mynah.

The Mynah was introduced from India about the middle of the 18th century by La Bourdonnais. It was specially selected to kill off the locusts that did so much harm to the crops.

Grant, in his 'History of Mauritius,' says in 1801 :—"The Isle of France was formerly exposed to the ravages of locusts. None of these noxious insects, however, have been seen here since the year 1770. It is pretended that the

Martin, a kind of bird brought here from India, which has multiplied in a very extraordinary manner, has destroyed them: it is certain that these birds feed upon them with avidity when they are just produced and before they have wings."

The Mynah is now one of the commonest birds of Mauritius and is said to do a great deal of good in keeping down insect pests. It is protected by law.

The birds are found not only among human habitations but in the cane-fields and forest. I have found them breeding in wells, chimneys, eaves, hollow trees, tangled creepers, and in one instance in the breech of an old muzzle-loading gun at Vacoas.

Large flocks of these birds congregate in the evening and fly off to the hills to roost.

Several buff-coloured and albino varieties are in the Port Louis Museum.

18. * MUNIA ORYZIVORA.

Munia oryzivora Sharpe, Cat. Birds, xiii. p. 328.

Moineau de Chine or Calfat.

Java Sparrow.

Introduced from the Malay Archipelago about 1750. By 1765 they had increased to such an extent that whole fields of corn were destroyed. In 1771 a kind of toll in heads of this species was levied on the inhabitants of Mauritius, whilst in 1804 it was suggested that Sparrow-Hawks should be introduced to kill them off!

The bird no longer exists here. As practically no grain is now grown in the island, the bird's natural food has disappeared, which accounts for its complete disappearance.

19. * MUNIA PUNCTULATA NISORIA.

Subsp. γ. *Munia nisoria* Sharpe, Cat. Birds, xiii. p. 346.

Coutil or Pingo.

Introduced from Java about 1800.

Fairly well distributed throughout the island.

20. * ESTRILDA ASTRILDA.

Estrilda astrilda Sharpe, Cat. Birds, xiii. p. 391.

Bengali du Pays.

Introduced at some period from South Africa, and now well distributed in the island.

Plentiful in Flat Island.

21. * HYPHANTORNIS CAPENSIS.

Subsp. *a. Sitagra caffra* Sharpe, Cat. Birds, xiii. p. 431.

Slug-Slug.

Introduced from Natal in 1892 by Monsieur Meyer. It is now common near Flacq, but does not seem to spread beyond that locality.

In December 1910 I saw a few pairs building in palm-trees about five miles south of Flacq.

22. * FOUDIA MADAGASCARIENSIS.

Foudia madagascariensis Sharpe, Cat. Birds, xiii. p. 433.

Le Cardinal.

This brilliant bird inhabits Madagascar, Réunion, Mauritius, and the Seychelles. To the last place it appears to have been introduced and its claim to indigenous rank in Mauritius is not quite established.

Leguat ('Le Voyage et les Avantures de François Leguat,' Amsterdam, 1750, vol. ii. p. 72), a very observant man, does not mention it, though he saw *Nesacanthis rubra*. "Petits oiseaux qui sont assez faits comme nos moineaux excepté qu'ils ont la gorge rouge."

Grant also, in his 'History of Mauritius,' writes in 1801: "the cardinal whose head is bright red." This obviously refers to *Nesacanthis rubra*.

Monsieur Emmerez de Charmoy tells me definitely that the bird was introduced from Madagascar.

At present, in Mauritius, it is fairly well distributed. The brilliant red of the male bird, which glows like a ball of fire, is a very striking sight. From October to February it appears to be at its best. The cock, in the breeding-season, is very fond of sitting on some prominent twig and shewing himself off with a loud twitter, while puffing himself out to a ridiculous degree.

On the Trou aux Cerfs and at Curepipe in December 1910 I saw large flocks.

I found nests and eggs at Curepipe in December and January. The nest was about the size of a small Ostrich's egg, with a hole in the side. The eggs were three or four in number, in colour like those of the English Wheatear; but the size was somewhat smaller.

23. NESACANTHIS RUBRA.

Nesacanthis rubra Sharpe, Cat. Birds, xiii. p. 485.

Zozo Banane or Oiseau Banane.

This indigenous species is fast disappearing from Mauritius and is now a rare bird even in the south-west of the island.

I saw five birds on Mount Cocotte in February 1911. In all their movements they are very graceful. They have a soft, sad little chirrup and are very tame, a trait characteristic of an indigenous species and very different from the boisterous, confident, but suspicious gait of *Foudia madagascariensis*.

24. COLLOCALIA FRANCICA.

Collocalia francica Sharpe, Cat. Birds, xvi. p. 503.

La Salangane.

Petite Hirondelle.

This widely distributed Swift, occurring in Australia, New Guinea, Fiji, Réunion, and Madagascar, is common in suitable localities throughout the island.

In the hills behind Port Louis and at Chamarel I found numerous large colonies. They were breeding in December. The nest is placed in the cleft of a rock, and though it is cemented together by a gelatinous substance, I have never heard of its being used as food.

25. EURYSTOMUS GLAUCURUS.

Eurystomus glaucurus Sharpe, Cat. Birds, xvii. p. 29.

Le Rolle de Madagascar.

Roller.

This species is an accidental visitor from Madagascar. It was first recorded by Desjardins, who caught a live specimen near Flacq in November 1826. Another was killed in Savanne in November 1837.

Since then several have been shot, and local specimens can be seen in the Port Louis Museum.

26. CUCULUS POLIOCEPHALUS.

Cuculus poliocephalus Shelley, Cat. Birds, xix. p. 255.

In the 'Proceedings of the Zoological Society of London,' 1832, p. 111, there is a record of a bird of this species having been shot in the forests of Flacq, near the source of the Rivière du Poste, on September 25, 1830. This specimen is now in the Port Louis Museum.

27. PALÆORNIS EQUES.

Palæornis eques Salvadori, Cat. Birds, xx. p. 442.

Cato or Cateau.

This handsome Parrot was once very common in Réunion and Mauritius, but became extinct in the former island about 1820.

This bird still exists in Mauritius, and near Mount Cocotte or Grand Bassin can be heard at most times. During the breeding-season it becomes very noisy. I saw a pair of old birds on the Curepipe Rifle Range in April 1911. They were very tame and did not appear to be so restless as most Parrots.

The Port Louis Museum contains several well stuffed specimens.

28. * AGAPORNIS CANA.

Agapornis cana Salvadori, Cat. Birds, xx. p. 507.

Petite Perruche.

Madagascar Parroquet.

This small Parroquet was introduced by the French over one hundred years ago. It was at one time very plentiful, but is now quite scarce. A few pairs have taken up their abode at Vacoas and can generally be seen on the polo ground there.

A scarcity of proper food has probably brought about the decrease of this species.

29. ALECTRŒNAS NITIDISSIMA.

Alectrœnas nitidissima Salvadori, Cat. Birds, xxi. p. 163.

Pigeon Hollandais.

Became extinct about 1830.

Three stuffed specimens are in the Museums of Port Louis, Paris, and Edinburgh respectively.

"Pigeon Hollandais" was the French name of this beautiful Pigeon, on account of its plumage being the same colour as the Dutch flag (red, white, and blue).

30. * COLUMBA LIVIA.

Columba livia Salvadori, Cat. Birds, xxi. p. 252.

Rock-Dove.

There are in Port Louis many hundreds of pigeons of various domesticated varieties. Every evening they congregate on the roofs of the houses and fly about three miles to an enormous face of precipitous rock in the hills behind Port Louis. This evening flight affords great sport, as the birds are extremely wild when once they have left the town. Every morning, soon after daylight, they descend in flocks of from ten to forty and spend the whole day picking up a livelihood in the filthy streets of Port Louis, where they are so tame as to be a nuisance.

These birds all breed in the precipitous face of the hills, on small ledges of rock.

I shot several that had reverted to the plumage of the pure Rock-Pigeon, and in the streets of Port Louis many such birds can be seen. These are also much more wild than those still shewing signs of domestic strains.

There is little doubt that we have here the foundation of a large colony of Blue Rock-Pigeons, which may eventually, if not persecuted too much, spread over the whole island and contribute largely to the sport of the island.

31. NESŒNAS MAYERI.

Nesœnas mayeri Salvadori, Cat. Birds, xxi. p. 327.

La Colombe de Mayer.

Pigeon des Marres.

From the earliest times this Pigeon has never been plentiful. A few still remain in the south-west corner of the island and are said to be increasing.

They are very tame and confiding and do not seem to care for the high forest trees. Monkeys are doubtless responsible for their extirpation. They have a heavy flight, but never go very far.

This species has a bad reputation from a culinary point of view. Etienne van der Hagen, who visited Mauritius in 1607, said that his men suffered from a peculiar sickness, characterized by extreme lassitude, which he argues was caused by this Pigeon ("rouges aussi bien par le corps qu'à la queue").

Bernadin de St. Pierre (vol. i. p. 125) also says: "There is a pigeon which tastes well, but to eat it is so dangerous that those who do are seized with convulsions."

Other writers testify to its bad effects.

Needless to say, the bird is now protected by law, which forbids any experiments, but its reputation was so bad that in 1818 the Natural History Society of Mauritius asked for "further particulars about this pigeon which was reported poisonous." Monsieur Emmerez de Charmoy has eaten the bird and tells me that its flesh is bitter, but that no ill effect was experienced.

Several pairs of this Pigeon are kept in private aviaries in Mauritius, but nobody has yet been successful in breeding them in captivity.

32. *? Turtur picturatus.

Turtur picturatus Salvadori, Cat. Birds, xxi. p. 409.

Pigeon Ramier.

There appears to be some doubt as to whether this species was introduced or not. The bird, or varieties of it, is common in Madagascar, Seychelles, Aldabra, Réunion, and the Comoros.

It is of course quite possible that it is part of the ancient bird-life of the island: but if so, it is remarkable that it has not developed some peculiar form. In other islands such species as *T. rostratus* and *T. aldabranus* are, I believe, only insular forms of this species.

In Mauritius these Doves are now on the verge of extinction, though they were once abundant. A sugar estate near Mahébourg is the only spot where they still exist.

33. * TURTUR SURATENSIS.

Turtur suratensis Salvadori, Cat. Birds, xxi. p. 444.

Tourterelle.

Oustalet ('Birds of Mauritius,' p. 75) includes this Indian Dove in his List on the strength of the description of a bird by Desjardins in 1834. From this description, the bird is undoubtedly of this species, but it was probably one of a few that had been brought from India and Ceylon, which had never gained a foothold.

When Oustalet published his book, this bird cannot have been plentiful, if, indeed, it existed. Doubtless it has since been reintroduced from India or Ceylon, for it is now extremely common all over the island.

34. * GEOPELIA STRIATA.

Geopelia striata Salvadori, Cat. Birds, xxi. p. 458.

La Petite Tourterelle.

Pigmy Dove.

Introduced about 1750, probably from the Malay Peninsula. It was tried on Round and Flat Islands, but has ceased to exist on the former, though abundant on the latter.

It is very abundant throughout the island, having a partiality for human habitations and cultivated lands.

35. * FRANCOLINUS CHINENSIS.

Francolinus chinensis Ogilvie-Grant, Cat. Birds, xxii. p. 136.

Perdrix Pintadée.

Chinese Francolin.

Introduced from Indo-China by the French about 1750.

It lives mainly on the high parts of the island near Vacoas and Curepipe, where it can occasionally be heard calling. It is by no means a plentiful bird.

36. * FRANCOLINUS PONDICERIANUS.

Francolinus pondicerianus Ogilvie-Grant, Cat. Birds, xxii. p. 141.

Perdrix Rouge.

Grey Francolin.

A native of India, introduced about 1750. Very abundant, in spite of the mongoose, and can be seen or heard from the coast-level to the heights behind Curepipe. I have flushed an individual on Tonnelier's Island in Port Louis Harbour.

The cock bird in the breeding-season becomes very noisy, and from September to January its cry is one of the characteristic sounds of the island.

37. * MARGAROPERDIX MADAGASCARIENSIS.

Margaroperdix madagascariensis Ogilvie-Grant, Cat. Birds, xxii. p. 196.

This Madagascar Quail was introduced into Mauritius about 1750, but has been extinct for many years.

Several attempts have recently been made to reintroduce it, but without success.

38. * PERDICULA ARGOONDAH.

Perdicula argoondah, Ogilvie-Grant, Cat. Birds, xxii. p. 200.

Caille d'Inde.

Introduced about a hundred years ago by the French from India.

A scarce bird and confined to the low country.

39. * EXCALFACTORIA SINENSIS.

Excalfactoria sinensis Ogilvie-Grant, Cat. Birds, xxii. p. 250.

Caille de Chine.

Chinese Quail.

Introduced from Indo-China many years ago and now the commonest of the three introduced species of Quail.

It lies very close when hunted and will scarcely ever rise a second time.

40. * PHASIANUS COLCHICUS.

Phasianus colchicus Ogilvie-Grant, Cat. Birds, xxii. p. 320.

Pheasant.

The Pheasant was introduced into the island from Saint Helena about 1880, but has never thriven and died out very soon, probably owing to there being no suitable food.

The Golden Pheasant has been tried, but could not be acclimatized, even as an aviary bird.

41. * TURNIX NIGRICOLLIS.

Turnix nigricollis Ogilvie-Grant, Cat. Birds, xxii. p. 549.

Caille de Madagascar.

Introduced from Madagascar at a fairly recent date.

It is only found in the sugar-cane and grass land on the central plateau, and is by no means plentiful.

42. GALLINULA CHLOROPUS.

Gallinula chloropus Sharpe, Cat. Birds, xxiii. p. 169.

Poule d'Eau.

Moorhen.

This familiar bird is common throughout the island in suitable localities. Its nesting-habits and eggs are identical with those of the English Moorhen, but its note is distinctly different, being harsher and more drawn out.

The Mauritius bird has been separated under the name of *G. pyrrhorhoa*, as having the under tail-coverts slightly fulvescent, but amongst seven birds that I examined, some stuffed and some in the flesh, five had very slightly fulvous under tail-coverts, whilst two were identical with European specimens. I believe that in Madagascar birds a similar want of uniformity in the under tail-coverts is noticeable.

43. * PORPHYRIOLA ALLENI.

Porphyriola alleni Sharpe, Cat. Birds, xxiii. p. 187.

Poule Sultane.

Purple Gallinule.

There appears to be very little evidence to shew that this species existed when the island was discovered. Considering what a remarkable bird it is, the fact of it not being recorded by early writers is strong evidence of its non-existence.

Sir Edward Newton ('Ibis,' 1861, p. 116) considered it to belong to the indigenous fauna.

Milbert ('Voyage Pittoresque à l'Ile de France,' vol. ii. p. 256) definitely states that it was introduced from Madagascar.

The species is plentiful in suitable localities in Madagascar, and I am inclined to believe that it was introduced by human agency into Mauritius. It is plentiful at La Lucie on the Rivière Sèche, where it breeds. This locality appears to be its stronghold. Wanderers only are obtained occasionally on neighbouring pieces of water. Formerly it used to be fairly plentiful on the Tamarin and Black Rivers, but it has been so persecuted there that it has probably died out.

At La Lucie Lake, where the birds are very tame, I had good opportunities of observing them. They do not seem to care about leaving the dense reeds. They are very clumsy flyers. Their particular delight seems to be to lurk about in thick sedge or grass and utter their weird screams and grunts at frequent intervals.

44. STREPSILAS INTERPRES.

Arenaria interpres Sharpe, Cat. Birds, xxiv. p. 92.

Tourne Pierres.

Turnstone.

It is not surprising to find this wanderer occurring in Mauritius. There are, indeed, few places in the world which it has not reached.

There are two stuffed specimens from Mauritius in the Port Louis Museum, and from time to time specimens are obtained from Madagascar, Réunion, and Rodriguez.

45. SQUATAROLA HELVETICA.

Squatarola helvetica Sharpe, Cat. Birds, xxiv. p. 182.

Grey Plover.

This wanderer from northern climes appears to be an occasional visitor. In the Port Louis Museum is a specimen shot at the Ile d'Ambre on Feb. 13 1905.

46. ÆGIALITIS GEOFFROYI.

Ægialitis geoffroyi Sharpe, Cat. Birds, xxiv. p. 217.

Greater Sand-Plover.

This bird is represented in the Port Louis Museum by two specimens, one from Black River (Feb. 1904) and another from the Ile d'Ambre (April 1904).

They are both immature, and I am told by Monsieur Emmerez de Charmoy that he has on several occasions seen the bird in Mauritius and that it was always in immature plumage.

There are specimens in the British Museum from Madagascar and Rodriguez.

47. NUMENIUS ARQUATA.

Numenius arquatus Sharpe, Cat. Birds, xxiv. p. 341.

Le Courlis. Le Roi Courlis.

Curlew.

There is a specimen of a Curlew in the Port Louis Museum, said to have been shot in Mauritius and labelled *N. madagascariensis*. By its side is a specimen of the European Curlew (*N. arquata*). The former is a perfect giant compared to the latter, but I see that *N. madagascariensis* is not recognised as a good species.

Newton observed a Curlew in Rodriguez ('Ibis,' 1865, p. 150), and the bird is well known in Madagascar.

It is apparently a rare but regular visitor to Mauritius, as it is well known to the fishermen, who are never able to approach it. Its large size makes it unmistakable.

48. NUMENIUS PHÆOPUS.

Numenius phæopus Sharpe, Cat. Birds, xxiv. p. 355.

Corbigo. Corbijen.

Whimbrel.

This bird is abundant on the coast from September to March. At Black River and in Port Louis Harbour I have counted as many as fifty at a time. I have also seen single individuals of this species in April, June, and July, all in Port Louis Harbour.

At Flat Island this bird appears to be resident. Two pairs were seen there in July 1910. In August of the same year I again saw them and one example was shot. In October 1910 three birds were seen. A nest with three eggs was found at Flat Island on Nov. 18, 1910; it was among some rough grass and close to the sea[*]. In June 1911 I saw a pair at Flat Island.

49. TOTANUS OCHROPUS (?)

Helodromas ochropus Sharpe, Cat. Birds, xxiv. p. 437.

Green Sandpiper.

Oustalet includes this bird in his 'Birds of Mauritius,' on the ground that Desjardins described an example of this species when describing his *Scolopax mauritiana.* But Desjardins adds that it is common enough on the sea-shore. If this be so, it is curious that the bird should have so suddenly ceased its visits.

I am not aware of an authentic specimen having been obtained in Mauritius.

50. TOTANUS HYPOLEUCUS.

Tringoides hypoleucus, Sharpe, Cat. Birds, xxiv. p. 456.

La Guignette.

Common Sandpiper.

Two specimens are in the Port Louis Museum. I saw examples of this species on inland waters on three occasions: twice in January and once in November. It has been recorded from Madagascar, Réunion, and Rodriguez.

51. TOTANUS CANESCENS.

Glottis nebularius Sharpe, Cat. Birds, xxiv. p. 481.

Greenshank.

The Greenshank has been recorded but once from Mauritius. An example was shot by Monsieur Lagesse in December 1830 near Rivière Sèche in the Flacq District.

It has already been recorded from Madagascar and Réunion.

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[*] Some confirmation is here needed. The Whimbrel breeds in the North in May.—EDD.

52. TRINGA SUBARQUATA.

Ancylochilus subarquatus Sharpe, Cat. Birds, xxiv. p. 586.

Cocorli.

Curlew-Sandpiper.

The Curlew-Sandpiper is well known in Mauritius and appears to be a regular visitor there in small numbers.

There are, in the Port Louis Museum, two specimens shot at Flacq in February 1904.

I saw a small flock in the Port Louis Harbour in October 1910. They were associating with Whimbrels.

53. CALIDRIS ARENARIA.

Calidris arenaria Sharpe, Cat. Birds, xxiv. p. 526.

Sanderling.

I saw two birds of this northern wanderer on Flat Island in November 1910, one of which I shot.

Monsieur Charmoy killed one some years ago at Flacq.

54. STERNA DOUGALLI.

Sterna dougalli Saunders, Cat. Birds, xxv. p. 70.

Roseate Tern.

An example of this Tern from Rodriguez is now in the British Museum (Cat. Birds Brit. Mus. xxv. pp. 70, 74).

Sir Edward Newton noticed the bird in Mauritius (Trans. Norfolk Soc. 1888, iv. p. 553).

55. STERNA FULIGINOSA.

Sterna fuliginosa Saunders, Cat. Birds, xxv. p. 106.

There are specimens of this Tern from Mauritius in the British Museum.

56. ANOUS STOLIDUS.

Anous stolidus Saunders, Cat. Birds, xxv. p. 139.

Noddy.

A single specimen in the Port Louis Museum was shot in Mauritian waters.

There are two specimens from Mauritius in the British Museum.

I saw a small flock of these birds at sea to the north of Mauritius in November 1910.

57. ANOUS TENUIROSTRIS.

Micranous tenuirostris Saunders, Cat. Birds, xxv. p. 144.

A bird of this species is in the Paris Museum, killed by Monsieur Delisse off Mauritius in 1807 (*Oustalet*).

There are three specimens from Mauritius in the British Museum.

58. GYGIS CANDIDA.

Gygis candida Saunders, Cat. Birds, xxv. p. 149.

This species has been frequently observed near Mauritius. I saw a solitary individual near Round Island in October 1910.

This bird is very common at the Seychelles and has been obtained at Réunion and Rodriguez.

59. PUFFINUS CHLORORHYNCHUS.

Puffinus chlororhynchus Salvin, Cat. Birds, xxv. p. 372.

60. PUFFINUS OBSCURUS.

Puffinus obscurus Salvin, Cat. Birds, xxv. p. 382.

Both these Shearwaters are represented by local specimens in the Port Louis Museum. They are known locally as "Fouquet."

I found the latter species breeding on Round Island in October 1910, but not in any quantity.

61. OSSIFRAGA GIGANTEA.

Ossifraga gigantea Salvin, Cat. Birds, xxv. p. 422.

The Giant Petrel.

The first record of this species in Mauritius was made by Desjardins, who left a very accurate description of an individual killed after a storm at Flacq. In recent years it has been observed at intervals, generally in the south of the island and after a cyclone.

There are ten specimens in the Port Louis Museum, all of which have been obtained locally.

62. PRION DESOLATUS.

Prion desolatus Salvin, Cat. Birds, xxv. p. 434.

Hartlaub mentions a bird of this species as coming from Mauritius and as forming part of the Newton Collection ('Die Vögel Madagascars,' p. 377).

63. DIOMEDEA FULIGINOSA.

Phœbetria fuliginosa Salvin, Cat. Birds, xxv. p. 453.

Albatross.

Desjardins mentions a specimen which he found on the seashore at Mahébourg in May 1829.

I think I saw a bird of this species between Réunion and Mauritius in July 1911.

64. BUTORIDES JAVANICA.

Butorides javanica Ogilvie-Grant, Cat. Birds, xxvi. p. 177.

Garce or Gasse.

This small Heron, which can be seen at any of the muddy or sandy reaches of either river or sea, is resident. At La Lucie Lake it is plentiful.

65. BUBULCUS LUCIDUS.

Bubulcus lucidus Ogilvie-Grant, Cat. Birds, xxvi. p. 213.

Le Heron Garde-Bœuf.

Egret.

This Heron, resident in Madagascar and the Seychelles, is now of great rarity in Mauritius, if, indeed, it still exists. A specimen in the Port Louis Museum was shot at Flacq many years ago.

Individuals have from time to time in recent years been imported from Madagascar and liberated, but the local gunners, who cannot resist a peculiar bird, will never allow it to gain a foothold in the island.

66. SULA PISCATOR.

Sula piscator Sharpe, Cat. Birds, xxvi. p. 432.

Fou Blanc.

Gannet.

Desjardins mentions this bird as being very common in

Mauritian waters. He says that it nested on Isle aux Fous, outside Mahébourg Harbour.

About 1860 it nested on Flat Island (*Oustalet*).

The bird has now ceased to exist in Mauritian waters, but is still plentiful off Madagascar.

There are immature examples of this species from Mauritius in the British Museum.

67. FREGATA ARIEL.

Fregata ariel Sharpe, Cat. Birds, xxvi. p. 447.

La Fregate.

Frigate-Bird.

Sir Edward Newton found this bird at Round Island in 1864. I saw an individual in the taxidermist's shed of the Port Louis Museum, that had been recently shot in the north of the island by a local gunner (Dec. 1910).

68. PHAËTHON RUBRICAUDA.

Phaëthon rubricauda Sharpe, Cat. Birds, xxvi. p. 451.

Paille en queue à brins rouges.

Red-tailed Bo'sun Bird.

Resident in Mauritian waters, breeding on Round Island, Gunner's Quoin (Coin de Mire), and Pigeon Rock (near Flat Island).

At Round Island in October 1910 I found these birds breeding in large quantities. Nests with fresh eggs and young in all stages were noticed. All the nests I saw were on the ground, sometimes at the foot of a palm-tree, sometimes under some slightly projecting rock. The parent birds were fearless and allowed me to touch them, but if I became too familiar they uttered a peculiar piercing shriek and vomited up their last meal.

This bird, though protected by law, is terribly persecuted by the fishermen, who slay it indiscriminately on Round Island when opportunity offers, and sell it as food to the Chinese at Port Louis, who consider it a great delicacy.

69. PHAËTHON LEPTURUS.

Phaëthon lepturus Sharpe, Cat. Birds, xxvi. p. 453.

Paille en queue à brins blancs.

White-tailed Bo'sun Bird.

Resident in Mauritian waters, breeding in the forests in Savanne and other suitable localities.

This species was observed at Flat Island, Gunner's Quoin, and Round Island, but no evidence of its breeding at these places was found. Oustalet ('Birds of Mauritius,' p. 119) states that it breeds in these places side by side with *P. rubricauda*.

The only nests that I saw were far inland, and placed on a tangled mass of fern and creepers about twenty feet from the ground.

70. PHŒNICOPTERUS MINOR.

Phœniconaias minor Salvadori, Cat. Birds, xxvii. p. 18.

Flammant.

Flamingo.

This bird was probably once a resident in Mauritius. Monsieur Emmerez de Charmoy tells me that large basketsful of their bones have been collected from a marsh.

In 1870 about fifty visited the island. About 1880 two were shot at Flacq, and this appears to be the last recorded instance of the bird's presence in the island.

It is resident in Madagascar.

71. * DENDROCYCNA VIDUATA. †

Dendrocycna viduata Salvadori, Cat. Birds, xxvii. p. 145.

Sarcelle.

This Tree-Duck, so common in Madagascar, has been lately introduced into Mauritius, but is nowhere plentiful. It does not wander inland very much. A few can generally be found in the quiet pools near Flacq and Mahébourg.

It is a common belief among certain local naturalists that this bird is not an introduced species, but I can find nothing to support this theory.

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† *Dendrocycna fulva* Salvadori has been frequently introduced from Madagascar, but is always kept in captivity.

72. * Anas melleri.

Anas melleri Salvadori, Cat. Birds, xxvii. p. 199.

Canard Sauvage.

Wild Duck.

This Duck was introduced from Madagascar about 1850. Though it has been very little persecuted, it has increased very slowly.

A nest with seven eggs was found between Curepipe and Mare aux Vacoas in September 1910.

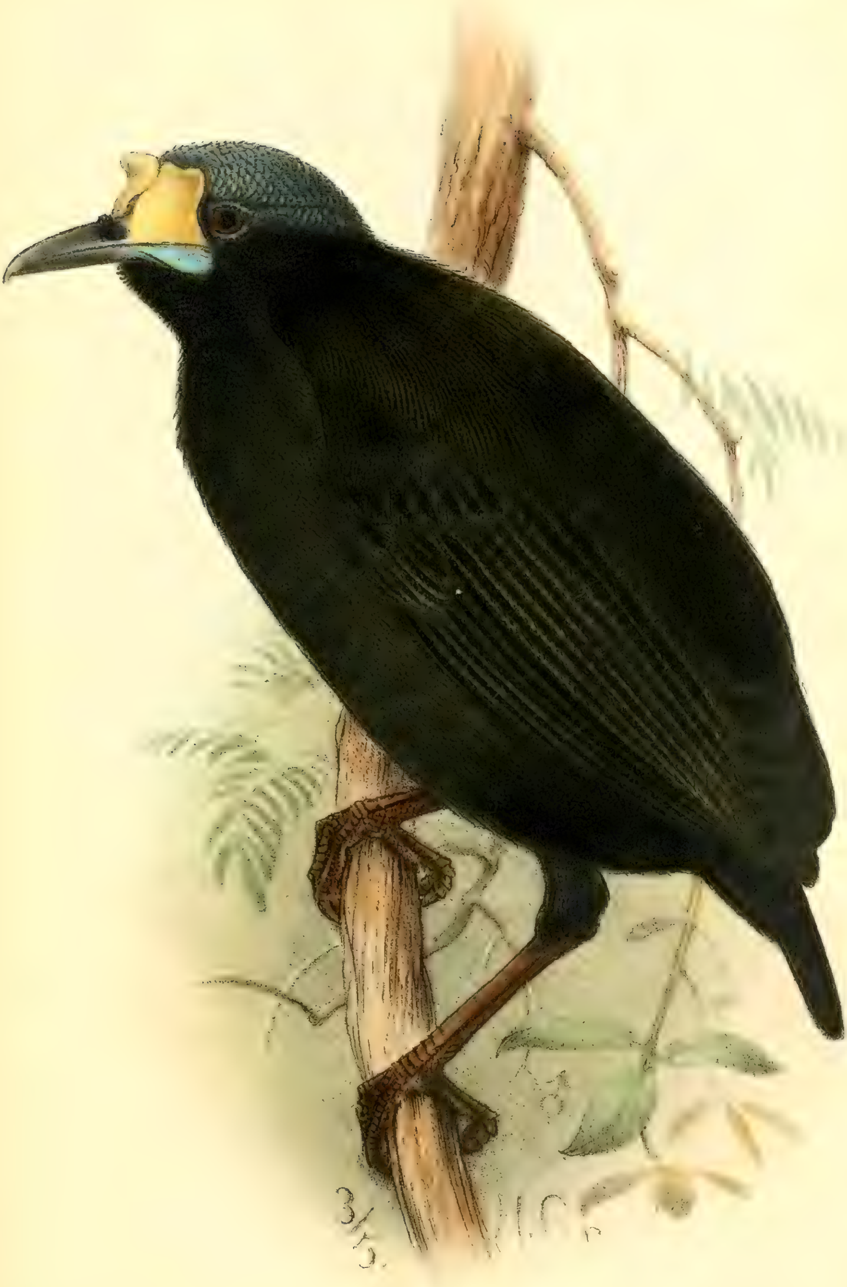
Appendix.

Extract from the Proclamation prohibiting the killing, &c. of Wild Birds in Mauritius.

The shooting, killing, taking in any place, and also the purchase, sale, or exhibition for sale in any public place, of the following birds is absolutely prohibited :—

Hirondelle	*Collocalia francica.*
,, ...	*Phedina borbonica.*
Rollier de Madagascar. . . .	*Eurystomus madagascariensis.*
Oiseau Blanc	*Zosterops mauritiana.*
Oiseau Manioc	*Zosterops chlorophæa.*
Merle de Maurice.	*Hypsipetes olivaceus.*
Coq des Bois.	*Terpsiphone borbonica.*
Cuisinier	*Oxynotus ferrugineus.*
Oiseau Banane	*Foudia erythrocephala.*
Cateau de Maurice	*Palæornis eques.*
Pigeon Ramier de Maurice.	*Columba meyeri.*
Martin	*Acridotheres tristis.*
Mangeur de Poules	*Tinnunculus punctatus.*
Paille en queue de l'Ile Ronde et de Terre . .	*Phaëton candidus. Phaëton erythræus.*

Note.—I reproduce these names exactly as they occur in the Government Gazette. I am in no way responsible for the French or Latin names.



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PARADIGALLA BREVICAUDA.

IV.—*On some newly described Birds-of-Paradise, and some Undescribed Eggs of the same Group.* By the Hon. WALTER ROTHSCHILD, Ph.D.

(Plate II.)

SINCE my paper "On recently described Paradiseidæ" (see 'Ibis,' 1911, pp. 350–367) was written, I have received a fine collection made by Mr. A. S. Meek on the Eilanden River and Mount Goliath in Central New Guinea. In it was a series of Birds-of-Paradise of more than ordinary interest. For in addition to two new forms, it contained examples of no less than four species described from trade-skins, and of which the exact *habitat* was unknown before. Unfortunately Mr. Meek's collecting trip was carried out during the wrong season of the year, *i. e.* between December and March, so that the larger number of Birds-of-Paradise were in full moult. In spite of this, however, his collection is in fine order, and it enables us to give definitely the true *habitats* in Central New Guinea of *Pteridophora alberti* Meyer, *Loboparadisea sericea* Rothsch., *Astrapia splendidissima* Rothsch., and *Parotia carolæ carolæ* Meyer.

The description of the two new species is as follows :—

PARADIGALLA BREVICAUDA. (Plate II.)

P. brevicauda Rothschild & Hartert, Nov. Zool. xviii. pp. 159, 160 (1911).

♂ ad. The colour is practically identical with that of *P. carunculata* Less., being velvety black, with the head, nape and foreneck dark metallic green, almost olive-green. The whole back and scapulars are glossed with oily green ; this is not visible in most skins of *P. carunculata*, but in one skin in the Tring Museum it is as much developed as in the majority of my series of *P. brevicauda*.

The median and greater upper wing-coverts are glossed with green, and the secondaries have sharply defined outer edges of dark golden green, which colour is also present on the distal portions of the inner webs, while the primaries are of a glossless black. These green outer edges to the secondaries are mostly duller or else purplish in our skins of *P. caruncolata*, but too much weight ought not to be laid on this difference, for while our specimens of *P. brevicauda* are all fresh well-made skins, those of *P. caruncolata* are old and remade. The great and striking difference between this recently described species and *P. caruncolata* is the short, straight, and somewhat emarginate tail, having the central rectrices slightly shorter, while the tail in the latter is long and cuneiform, the middle tail-feathers exceeding the lateral ones by 60–65 mm. A very peculiar fact, distinctly showing the line of evolution, is, that the young birds of *P. brevicauda* have the tail longer than the adults, *i. e.* 35 to 40 mm. longer. The first two primaries are less attenuated and less sharply pointed, and the third is comparatively longer than in *P. caruncolata*. Wing 154·5–160 mm.; tail 51–54 mm. (against 170–180 mm. in *P. caruncolata*); bill from end of nasal tufts 25–26 mm.; metatarsus 47 mm.

♀ ad. Resembles the male, but the crown of the head is not so strongly glossed, and the back has hardly any greenish gloss.

Young birds resemble the female, only the colour is duller and more brownish, *the tail longer*, and the wattles shorter.

"Iris dark brown, feet dark vandyke brown, bill black. The lappets on the upper mandible (and the small hidden wattles at the base of the lower) are creamy yellow, the rugose wattle-like skin near the base of the lower mandible cobalt blue."

Habitat. Mount Goliath, Central New Guinea, at elevations of not less than 5000 feet (A. S. Meek coll.).

FALCINELLUS STRIATUS ATRATUS.

F. striatus atratus Rothschild & Hartert, Nov. Zool. xviii. p. 160 (1911).

♂ ad. Differs from the adult male of *Falcinellus striatus striatus* in being black instead of deep brown on the under surface, and in the tips of the lower ornamental side plumes being steel-blue instead of more or less bronzy green. The beak is slightly larger, especially thicker; this is most apparent in the females.

♀. Like that of *F. s. striatus*, but the upper surface, especially the tail, is more olive, less rufous, and the crown generally somewhat darker rufous.

Habitat. Mt. Goliath, Central New Guinea, at an elevation of not less than 5000 feet (A. S. Meek coll.).

Since the article by Dr. Ernst Hartert "On the Eggs of the Paradiseidæ," in Nov. Zool. xvii. pp. 481–491 (1910), Mr. Ogilvie-Grant, in the current number of the present journal, is figuring and describing some hitherto unfigured and undescribed eggs of Paradise-Birds, but the following two have, so far as I know, not yet been described, though I mentioned them in my previous article in a footnote :—

ASTRAPIA ROTHSCHILDI.

Astrapia rothschildi Foerster.

The eggs of *Astrapia* are of a similar type to those of true *Paradisea*, but have a less glossy surface, while the underlying shell markings are more numerous. The blotches and streaks are also wider and less elongated. Ground-colour of the egg in the Tring Museum pinkish cinnamon with a number of pale liver-brown blotches at the larger end, a number of underlying lavender streaks all over the surface, and one or two larger and darker round the centre. A second specimen belonging to Professor Foerster has a somewhat paler ground-colour. Length 37 mm.; breadth 28·5 mm.

Rawlinson Mts., German New Guinea (Keysser coll.).

PARADISEA GULIELMI Cab.

The two eggs in the Tring Museum (which the collector states are a clutch) are so different one from the other that I am almost certain that they are eggs of two different individuals. As, however, *P. augustæ-victoriæ* and *P. minor finschi* are not found so high up in the mountains as where these eggs were taken, there is little doubt that they are *both* really eggs of *P. gulielmi*. These eggs differ at a glance from those of the two other above-mentioned forms of *Paradisea* in that the longitudinal streaks are much thinner and more widely separated.

Paler egg.—Ground-colour creamy, streaked all over with long narrow streaks of chestnut-brown interspersed with similar underlying streaks of mauve. The pale ground-colour is a clear cream, *not* saturated with pale cinnamon as in the pale eggs of *P. augustæ-victoriæ.* Length 36·5 mm.; breadth 26 mm.

Darker egg.—Ground-colour clear rosy cinnamon, streaked rather more closely with rufous streaks and underlying mauve streaks. The streaks also stop short towards the smaller pole. Length 36·5 mm.; breadth 25·5 mm.

Sattelberg, German New Guinea (Keysser coll.).

In an article on New Guinea Birds ('Notes from the Leyden Museum,' xxx. pp. 225–244), Dr. Van Oort enumerates three specimens of *Pteridophora alberti* Meyer, two from the Tabi or Gautier Mts., east of the Ambernoh River (Mambarano), and one from Kwatisori, South Coast of Geelvink Bay. These probably all came from the interior, and were bought by their respective donors from the native traders at the localities cited. If, however, they really were shot by or handled in the flesh by their donors, it would go to prove that *P. alberti* has a similarly wide range to *Loria loriæ* and *Paryphephorus duivenbodei*—a fact I strongly doubt, as in such case we should have received examples many years before they actually did arrive.

V.—*On the Eggs of certain Birds-of-Paradise.*

By W. R. Ogilvie-Grant, M.B.O.U.

(Plate III.)

In the seventeenth volume of the 'Novitates Zoologicæ,' issued in 1910, Dr. Hartert has published an account of the fine collection of eggs of Birds-of-Paradise and Bower-Birds in the Tring Museum. The value of the paper is greatly enhanced by a beautiful coloured plate shewing the eggs of no less than twenty-one different species; several are figured for the first time. It must, however, be pointed out that, in a good many instances, the identification of the eggs is somewhat doubtful, and rests on the evidence of the natives who obtained them.

The Natural History Museum having recently received eggs of several species of Birds-of-Paradise the identification of which is certain, it has been thought that a few notes and figures of these beautiful objects might be of interest to the readers of 'The Ibis.'

PARADISEA APODA. (Plate III. fig. 2.)

Paradisea apoda Meyer, Zeitschr. Ges. Orn. i. p. 293, pl. xvii. fig. 2 (1884); Goodfellow, Avicult. Mag. (3) i. p. 283 (1910).

1. Silbattabatta, Wanumbai, I. of Wokan, Aru Islands, 12th December, 1903 (*W. Goodfellow*). Presented by Mrs. E. J. Johnstone.

The beautiful egg figured in the accompanying plate was procured by Mr. Walter Goodfellow, who has published the following account of it:—

"The nesting-season appears to commence in December, just as the males have gone out of plumage, for I had an egg brought to me early in that month, during my last visit to the Aru Islands, and a few days later the same native took another to Mr. Pratt, Sir William Ingram's collector, who was staying in that district. The man said he got them both from the same nest, but there was a remarkable difference in the colouring of the two. While Mr. Pratt's egg was almost white with comparatively few markings, mine was very pink and richly streaked all over, but more especially at the larger end. At the same time, together or apart there could be no question as to their being the eggs of a Paradise-Bird. The native who brought them being a particularly stupid person and not speaking much Malay, I could get no satisfactory information from him about the nest, whether it was high up or low down. In all probability it was low down, like that of *P. raggiana*, and two eggs is the usual number, with a possible three at times. During the first week in January

Mr. Pratt had a young example of *P. apoda* brought to him alive, which a native had caught in the jungle."

The egg figured measures 1·54×1·08 inches. That described and figured by Meyer is very much smaller, about 1·36×1·0 inches, and may not be the egg of *P. apoda*. It agrees closely in size and colour with an egg of *P. raggiana* presented to the Natural History Museum by Captain Barton. Though obtained by Ribbe at Siltute, Aru Islands, it may have been brought there by natives from New Guinea for purposes of trade.

PARADISEA RAGGIANA. (Plate III. fig. 1.)

Paradisea raggiana Ramsay, Pr. Linn. Soc. N.S.W. viii. p. 26 (1883); Hartert, Nov. Zool. xvii. p. 489, pl. x. fig. 3 (1910).

1. Kokada, N. side of Owen Stanley Range. Presented by Captain F. R. Barton.

1. Wamai, S. side of Owen Stanley Range. Presented by Captain F. R. Barton.

There is no reason to doubt that these eggs of *P. raggiana* have been correctly identified, Captain Barton having obtained them from a reliable native collector, and having assured himself on this point. The eggs are very similar to one another and resemble the figure given by Dr. Hartert, who describes an egg procured by A. S. Anthony in the Owen Stanley Mountains at an elevation of 2000 ft.

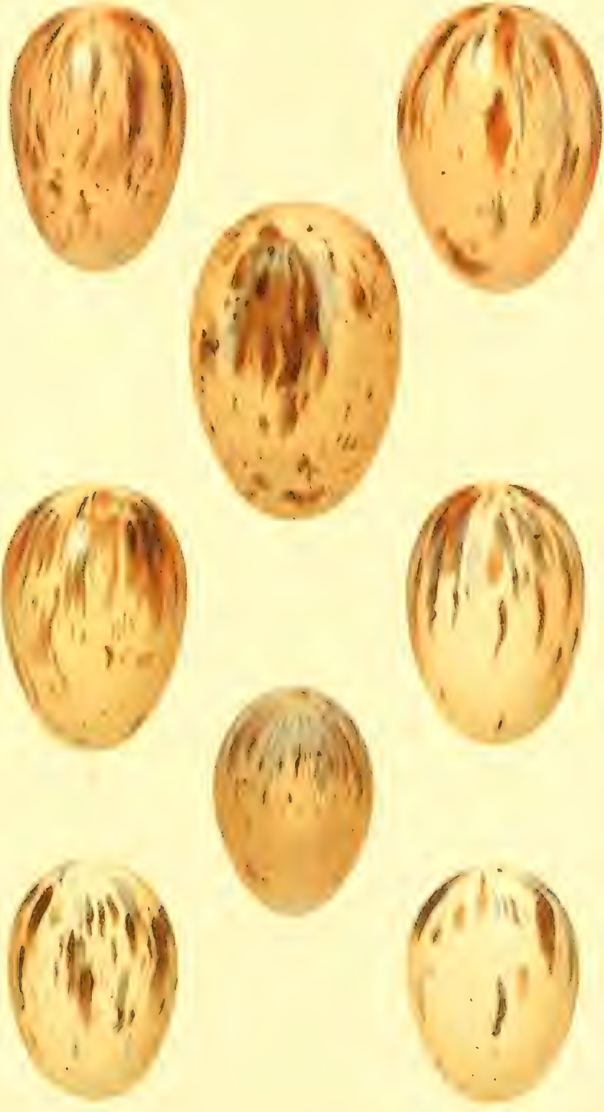
The egg figured is that procured at Kokada and measures 1·4×·92 inch; that from Wamai is rather larger and measures 1·42×1·02.

The nest and egg of this species were first recorded by Dr. E. P. Ramsay in his paper quoted above. He gives the measurements of the egg as 1·45×·95, but no indication is added either of the locality where it was obtained or of the name of the collector.

ASTRAPIA STEPHANIÆ. (Plate III. fig. 3.)

Astrapia stephaniæ Hartert, Nov. Zool. xvii. p. 488, pl. x. fig. 8 (1910).

1 (laid in captivity). Bagutana, Owen Stanley Mts., 8000–



PARADISE

9000 ft., 12th August, 1911 (*Walter Goodfellow*). Presented by Mr. E. J. Brook.

On comparing my figure with that given by Dr. Hartert it will at once be seen that the latter represents a very much smaller egg, measuring 1·41 × ·99 inch (36½ × 25·4 mm.). The egg in the Tring Museum, taken by A. S. Anthony in the Owen Stanley Mountains, has very possibly been incorrectly identified, and seems more likely to be that of *Paradisea raggiana*, which it resembles in size, colour, and markings. However, all the Paradise-Birds seem to lay eggs of much the same type, and bearing in mind the great individual variation in size to be found in the eggs of the Common Rook (*Corvus frugilegus*), it is not wise to express one's doubts in too positive a manner.

In Mr. E. J. Brook's splendid aviaries at Hoddam Castle there are no fewer than three pairs of these fine birds living, all brought back by Mr. W. Goodfellow in 1909. In 1911 one pair of them nested, and three clutches containing one egg each were laid. The first egg, figured in the accompanying Plate, was known to be "clear," and was taken after the female had incubated it for about a week; the second egg was unfortunately broken by the male; subsequently, as mentioned below, a third egg was laid.

Mr. Brook has kindly furnished me with the following notes concerning this most interesting event.

"When I went to Norway at the end of May one pair of the Princess Stephanie's Paradise-Birds were not agreeing together very well; the hen was very masterful and would not allow the cock to feed. In July my man separated the pair and very soon afterwards the hen commenced to build a nest. It was a large rough structure placed on a kind of bracket, where a forked branch was fixed to the wall of the inner aviary.

"The foundation of the nest was formed of a few birch-twigs and the rest was built of bamboo-twigs with the leaves on. It was rather roughly constructed, but very substantial: it measured about 12 inches across, and about 8 inches in depth, and though a few pieces of moss had been carried in, they could scarcely be called a lining. One large egg was laid on the 12th of August, 1911, quite a month after the commencement of building operations, and the hen sat very closely. As the pair had been separated for quite six weeks, and the male bird was in full moult at the time of separation, there was of course no hope of the egg being fertile.

"Subsequently, the male having completed his moult, the pair of *A. stephaniæ* nested again, and again one egg was laid. Unfortunately the male destroyed it by putting his bill through it."

Later (November 15th, 1911), I have just heard from Mr. Brook that the bird is again sitting on one egg, but he is not sure whether it is fertile or not.

The strides that have been made in Aviculture during the last few years are truly astonishing. Ten years ago it was thought a wonderful feat to bring a living Paradise-Bird to this country, and still more so to keep it alive. A short time ago Mr. Brook had examples of no fewer than twenty-three species of Paradise-Birds and Bower-Birds living in his wonderfully arranged aviaries at Hoddam Castle. Now two of these species have built nests and laid eggs, and there is every reason to hope that during next season they may successfully rear their young.

The egg figured measures 2·7 × 1·1 inches.

LOPHORHINA MINOR. (Plate III. fig. 6.)

Lophorhina superba minor Hartert, Nov. Zool. xvii. p. 487, pl. x. figs. 22, 23 (1910).

1. Kagi, Owen Stanley Mountains, 6000 ft. Presented by Captain F. R. Barton.

This egg was procured by Captain Barton from the same source as those of *Paradisea raggiana* mentioned above, and there is no reason to doubt its authenticity.

Eggs of this species have already been figured by Dr. Hartert, but represent paler and somewhat different types, with very few markings on the broad end. They agree, however, in size.

The egg figured measures 1·23 × ·84 inches.

PTILORHIS INTERCEDENS. (Plate III. figs. 4, 5.)

Ptilorhis magnifica intercedens Hartert, Nov. Zool. xvii. p. 488, pl. x. fig. 9 (1910); Brook, Ibis, 1911, p. 577.

2. Moroka Mts., British New Guinea, 9th June, 1908. Presented by Mr. Walter Goodfellow.

The identification of these eggs is certain, for the female parent was caught on the nest by Mr. Goodfellow and is now living in the aviaries of Mr. E. J. Brook at Hoddam Castle. It twice attempted to breed there during the summer and autumn of 1911, but the two eggs were laid from the perch and broken. This was a great disappointment as the bird had constructed two fine nests before the second pair of eggs were laid—one in a large bunch of birch twigs in the inner aviary, and the other on a branch of a tree covered with honeysuckle in the flight-aviary.

As will be seen from the figures the specimens taken by Mr. Goodfellow resemble the egg figured by Dr. Hartert, which was taken in German New Guinea by Wahnes.

The two eggs figured measure respectively 1·4 × ·96 and 1·37 × ·95 inches.

PTILORHIS ALBERTI. (Plate III. figs. 7 & 8.)

Craspidophora alberti Le Souëf, Ibis, 1897, p. 394, text-fig. 1; North, Nest & Eggs Birds Austr. i. p. 29 (1901).

Ptilorhis alberti Campbell, Nests & Eggs Austr. Birds, i. p. 76, pl. 6 (1901).

Ptilorhis magnifica alberti Hartert, Nov. Zool. xvii. p. 488 (1910).

2. Somerset, Cape York, 23rd October, 1896 (*H. G. Barnard*). Received in exchange from Mr. D. Le Souëf.

The eggs here figured are those described by Mr. D. Le Souëf in 'The Ibis' for 1897. They were obtained at Somerset, Cape York, on the 23rd of October, 1896, by Mr. H. G. Barnard, who was the first to find the nest and eggs of this species. After waiting for three hours he shot the female when she returned to her eggs. Altogether Mr. Barnard obtained no less than fourteen eggs of this species. Full particulars will be found in the various works quoted above.

The two eggs figured measure respectively 1·27 × ·89 and 1·25 × ·91 inches.

VI.—*Descriptions of Two new Species and a new Genus of Australian Birds.* By ALFRED J. NORTH, C.M.Z.S., C.M.B.O.U., Ornithologist to the Australian Museum, Sydney *.

DURING the preparation of the Appendix to the 'Nests and Eggs of Birds found Breeding in Australia and Tasmania,' I discovered, in the Australian Museum, specimens of two apparently undescribed, or rather unnamed, species. The skins of both were procured by the late Mr. Alexander Morton in February 1879 at Port Essington, in the Northern Territory of South Australia.

NEOSITTA MORTONI, sp. n.

Adult male. Like the adult male of *Neositta leucoptera* Gould, but the black on the forehead extends down to the base of the bill: the mantle and back are of a darker shade of brown and more broadly streaked with black; only the chin, throat, and centre of the fore-neck are white, the remainder of the under surface being brownish white with darker brown centres or tips to some of the feathers on the sides of the breast and abdomen; "bill yellow, black at the tip; legs and feet bright yellow; iris yellow" (*Morton*). Total length 4·3 inches; wing 3·3; tail 1·5; bill 0·5; tarsus 0·68.

Adult female. Similar to the male, but having the sides of the head, the cheeks, ear-coverts, chin, and upper throat also black.

Hab. Port Essington, Northern Territory of South Australia.

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* By permission of the Trustees of the Australian Museum.

Types. In the Australian Museum, Sydney.

Remarks.—I have named this species after its discoverer, the late Mr. Alexander Morton, who in 1879 was collecting at Port Essington and other parts of the Northern Territory on behalf of the Trustees of the Australian Museum. Gould, in his 'Birds of Australia,' in describing *Sittella leucoptera,* remarks:—"The sexes differ from each other in the markings of the head; the male has the summit only black," and figures both sexes with the entire under surface white and unstreaked. In the 'Catalogue of Birds in the British Museum'* Dr. H. Gadow describes the adult of *Sittella leucoptera* as having the "frontal and orbital region and lores white; . . . . . under parts white, without streaks as in *S. pileata.*" The type was procured by the late Benjamin Bynoe, Esq., on the north-west coast of Australia, and the descriptions of Gould and Dr. Gadow agree with similar specimens collected by the late Mr. T. H. Bowyer-Bower and Mr. E. J. Cairns at Derby, North-Western Australia, and by the late Mr. A. S. Macgillivray at Cloncurry, Northern Queensland.

ALCYONE RAMSAYI, sp. n.

Adult male. Like the adult male of *Alcyone pusilla* Temminck, but having the upper parts and sides of the breast rich bright blue instead of ultramarine: the outer webs of the inner primaries are distinctly shaded with green: there is a larger extent of blue on the sides of the breast and it nearly meets in the centre, while the white under tail-coverts are slightly tipped with blue. Total length 4·2 inches; wing 2·1; tail 1; bill 1; tarsus 0·32.

Hab. Port Essington, Northern Territory of South Australia.

Type. In the Australian Museum, Sydney.

Remarks.—I have named this species after Dr. E. P. Ramsay, formerly Curator of the Australian Museum, who has fully described the same specimen, and pointed out its differences from *Alcyone pusilla,* in his 'Catalogue of the Australian Birds in the Australian Museum'[*].

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* Cat. Birds Brit. Mus. vol. viii. p. 363 (1883).

I wish also to point out a new genus of Australian birds, which I propose to call *Trichodere.*

When Gould characterized *Ptilotis cockerelli* in the 'Annals & Magazine of Natural History' in 1869, he remarked:—"Although I have placed this beautiful new species in the genus *Ptilotis,* I am by no means certain that I am correct in so doing, for the bird possesses characters which ally it to at least three genera, namely *Stigmatops*, *Meliphaga*, and *Ptilotis*, while it possesses characters peculiar to itself to demand a distinct generic appellation."

There are specimens of this bird in the Australian Museum obtained by the late Mr. J. A. Thorpe, who was with Cockerell at Cape York in 1867-8. Recently Dr. W. Macgillivray, of Broken Hill, South-western New South Wales, has forwarded to me a nest and eggs of this species, together with the skins of the birds shot therefrom. They were procured by his collector, Mr. W. McLennan, near the Jardine River, Cape York Peninsula. Mr. McLennan states that this bird, in habits, notes, and nidification (nesting within a few feet of the ground), is a *Glycyphila.* The nest, however, a very scanty, wiry cup-shaped structure, is totally unlike those of the Australian members of this genus, which are thick-walled and compactly built, and of a dome-shape. Moreover, as Gould has pointed out, this bird "possesses characters peculiar to itself to demand a distinct generic appellation." While differing in minor characters from *Glycyphila*, *Meliornis,* and *Ptilotis,* it may be readily distinguished from these and every other genus of the family Meliphagidæ, by the hair-like appearance of the sides of the feathers on the throat and fore-neck. I therefore purpose to distinguish it under the generic name of

	Type.
Trichodere	*Ptilotis cockerelli.*

Range. Cape York Peninsula, Northern Queensland.

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[*] Cat. Birds Austr. Mus. pt. iv. pp. 22-23 (1894).

VII.—*Field-Notes on a Collection of Birds from the Mediterranean.* By Commander H. Lynes, R.N. *With Systematic Notes by* H. F. Witherby.

The collection of birds upon which the following paper is based was made by Lynes whilst serving in H.M.S. 'Venus' on the Mediterranean Station between September, 1905, and December, 1907, and has been worked out by Witherby. The former is responsible for the Field-Notes, the latter for the diagnosis of the specimens, the nomenclature, and the initialled notes. As may be expected of a collection made over so wide a field, a number of geographical and local forms of the same species are represented, in the identification of which Witherby wishes to express his grateful thanks to Dr. Ernst Hartert, who has given him much help, both at the Tring Museum, where much of the collection was worked out, and through his most valuable book, 'Die Vögel der paläarktischen Fauna.' In the nomenclature the rules of the "International Commission on Zoological Nomenclature" have been followed, and this has also been made possible by Dr. Hartert's work.

The collection being chiefly the result of short and disconnected visits to different places, in no cases can the specimens or the field-notes be considered in the slightest degree comprehensive of the bird-life at any particular place; the "notes" are therefore arranged in order according to the species and not the places, and only such notes are given as are thought to possess the character of novelty or interest.

In the Field-Notes it is not intended to imply or suggest that a species does *not* exist at any of the places visited unless it is so stated. The specimens were all obtained either at, or quite close to the sea-coast, and all references to localities are intended to imply this.

Places visited by H.M.S. 'Venus.'

EGYPT	Port Said	23rd Aug. 1906–15th Jan. 1907 (except as below).
	Alexandria	14th–17th Sept. 1906; 14th–17th Oct. 1906; 15th–19th Dec. 1906; 10th–15th Jan. 1907.
	Damietta	22nd Nov. 1906.
CYPRUS	Famagusta	10th–12th Oct. 1907.
CRETE	Suda Bay, Candia (North coast).	3rd Feb. 1906–28th April, 1906 (except 13th–23rd April).
ASIA MINOR	Smyrna	1st–9th Aug. 1907 and 4th Oct. 1905.
	Marmarice	24th–28th July, 1907.
GRECIAN ARCHIPELAGO.	Mitylene	12th–15th Aug. 1907.
	Lemnos	24th Sept. 1905 and 20th Aug.–6th Sept. 1907.
	Thaso	18th Aug. 1907.
GREECE	Athens	13th–23rd April, 1906.
	Navarino	20th July, 1907.
	Platea	3rd–17th Dec. 1905 and July 10th–18th, 1907.
	Laverda	20th Dec. 1905.
CORFU		Dec. 23rd–29th, 1905.
ALBANIA		Dec. 30th, 1905.
SICILY (on leave from ship all this time).	Lago di Lentini	22nd–23rd May, 1907.
	"District of the Cavas," 15 miles from Syracuse.	25th May–4th June, 1907
	Pantana di Lentini	6th–8th June, 1907, and 12th Jan. 1908.
MALTA	On and off during all months.	
SARDINIA	Palmas Bay	3rd–5th May, 1907. (South coast.)
	Aranci Bay	6th–10th May, 1907 15th–20th Dec. 1907 (North-east coast.)
ITALY	Genoa	1st Nov. 1905 and 21st–28th Dec. 1907.
	Spezzia	29th–31st Dec. 1907.
	Naples	1st–10th Jan. 1908.
SPAIN	Alicante	10th June, 1906.
	Cartagena	9th April, 1907.
	Gibraltar	14th–25th June, 1906 and 5th–29th July, 1906; 23rd–25th Feb. 1907; 16th–24th Feb. 1908.

GARRULUS GLANDARIUS GLANDARIUS (L.).

The typical Jay was abundant at Platea in mid-winter and two specimens were obtained.

GARRULUS GLANDARIUS KRYNICKI Kalenicz.

This Jay was found at Marmarice at the end of July, frequenting the woods. One specimen was obtained.

STURNUS VULGARIS.

Starlings were met with in Egypt, first appearing at Port Said on the 28th of October. From this date up to the end of November plenty of small parties were to be seen and were much sought after by the local sportsmen. Unlike all the other migrants which, when moving, invariably went southward, the Starlings almost from the date of their arrival seemed to wander about. For instance, at sunrise on 3rd November at Port Said, more birds were seen flying to the northward than to the southward, and the same sort of thing went on during the whole of the month. These movements were not due to a regular passage in any particular direction, but most likely had as their object visits to certain feeding-grounds, and from this it would appear as though the birds had come to stay for the winter. After the 2nd of December, however, no more Starlings were observed at Port Said, though it is evident from the observations of Mr. Nicoll and Mr. Loat ('Ibis,' July, 1908; January, 1906), that small flocks of Starlings are to be found near Damietta in winter time. It would seem probable therefore that Starlings are winter visitors to Egypt in small numbers, shifting their quarters according to the food supply.

At Platea in mid-winter large flocks of Starlings frequented the Missolonghi Plains, but no specimens were obtained.

[The only specimen procured (Port Said, October 28th, 1906) was an example of *Sturnus vulgaris poltaratskyi* Finsch.—*H. F. W.*]

ORIOLUS ORIOLUS (L.).

On the west coasts of Greece and Albania well-preserved nests of Golden Orioles were found in mid-winter; otherwise no breeding-records to the eastward of Spain were obtained.

Egypt.—Migrant in moderate numbers. The passage started with September, and the last Orioles were observed on the 26th of the same month. For the first few days nearly all were dull-plumaged birds (juveniles or females), then came a fair sprinkling of full-plumaged adult males.

Crete and Athens.—Not noted. 3rd February–28th April.

Malta.—From 1st May onwards a plentiful migrant. It is possible that occasionally a pair stops to breed in some of the more retired "ouieds" and orchards on the southern side of the island, where an adult male was seen and heard in feeble song on 23rd June, but this bird did not behave as if it had a nest or young. The chances of a brood being reared in this thickly populated and "ornithophagous" country are very small.

Sicily.—The walnuts and poplar trees in the "Cavas" seemed admirably suited to the breeding-requirements of Orioles, but not a bird was seen between 22nd May and 4th June.

COCCOTHRAUSTES COCCOTHRAUSTES * (L.).

The Hawfinch was met with as a breeding-species and probably resident in Spain, but elsewhere only as a winter-visitor.

Egypt.—Hawfinches, though never seen more than two or three at a time, had a distinct migration-passage, starting at the beginning of November (or possibly a week earlier) and continuing to arrive until the beginning of December, but like most of the finches, their migrations are probably much influenced by local weather conditions.

Near Damanhour in December several Hawfinches were observed among the larger trees, and a female was shot as she rose from a dry dyke-bank with not a tree near. Her stomach contained seeds and kernels.

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* The Editors of the 'Ibis' are responsible for the omission of the third repetition of *coccothraustes* for the typical form, an omission which is contrary to the International Rules followed by the author.—[We do not profess to follow the "International Rules."—EDD.]

Platea.—In winter the species was found plentiful; a female was obtained.

Gibraltar.—Abundant, breeding in the cork woods. Last young out of the nest on 23rd June. The Hawfinch appears to winter in the Coto Doñana but does not breed there, and was observed in small parties near Gibraltar as early as 9th March. It would seem that the Spanish birds are probably resident, but collect and wander about during winter-time.

[Specimens of the typical form were collected in Greece (Dec. 2), Spain (June 17), and Egypt (Dec. 15).—*H. F. W.*]

CHLORIS CHLORIS AURANTIIVENTRIS Cab.

Crete.—First noted 25th February, when three were shot out of a small party of both sexes. Small flocks were noted thereafter up to 25th April. This race of Greenfinch therefore at any rate spends the winter in Crete. Whether it also breeds there was not noted.

Corfu.—Fairly plentiful in mid-winter. One specimen obtained.

Greenfinches were also met with in Egypt as winter visitors, arriving about 21st October, as migrants in Sardiina, in Malta probably also as migrants, and in winter at Platea. Near Gibraltar a number of Greenfinches were met with at the end of July, but no specimens were obtained at any of these places to indicate to which race they belonged.

CARDUELIS CARDUELIS.

Egypt.—Not met with from August to January, but as Mr. Nicoll observed the species at Damietta ('Ibis,' July 1908) and it figured in the bird-catchers' lures in November and December, the Goldfinch is presumably a winter visitor in small numbers.

Crete.—Winters and breeds, presumably individuals are resident, although there seemed to be a slight increase at the end of March, and then a decrease to breeding numbers as if there was some migratory movement, but this was not at all certain. Nests with fresh eggs, 27th April.

Platea.—Plentiful in winter and summer.

Not noted in Smyrna and the Grecian Archipelago between 24th July and 6th September.

Cyprus.—In flocks 10th October.

Corfu.—Plentiful in winter.

Malta.—Winter visitor only. All appeared to have left early in March.

[Only one specimen was obtained (♀ Corfu, Dec. 26, 1905), and this puzzled me, being most like typical *C. carduelis*, but it may have been a migrant.—*H. F. W.*]

CARDUELIS SPINUS (L.).

The only Siskin met with was a single male near Athens on 21st April. This bird was probably on migration, though the testes were large. The stomach was nearly empty, and contained a few small seeds, small insects, and grit.

CARDUELIS CANNABINA MEDITERRANEA (Tschusi).

This race of Linnet was met with in Egypt, where it was a winter visitor, arriving about the 25th of October, and in Crete also in winter. As in the case of the Chaffinch many individuals, perhaps all, left for the north in March, but unlike that species, the numbers were augmented by fresh arrivals from the south in April. These were still coming through when the ship left on 28th April. It was not ascertained whether any Linnets breed in Crete.

Linnets were winter visitors to Malta, but specimens were not obtained.

[One from Crete (Feb. 27, 1906) and one from Port Said (Nov. 10, 1906) were of this form—*H. F. W.*]

SERINUS CANARIUS SERINUS (L.).

Malta.—The Serin does *not* breed, though fairly plentiful in winter, the birds collecting in flocks during the early part of March and leaving the island before the end of that month.

Crete.—The Serin was found on the 7th of March, and probably winters. No further notice was taken of the species.

FRINGILLA CŒLEBS CŒLEBS L.

Egypt.—Winter visitor in small numbers. First observed on the 18th of October, when a male came on board ship at sea off the Damietta mouth of the Nile. Fresh arrivals continued up to the end of November, when the numbers reached a maximum and then decreased to winter proportions.

Crete.—Plentiful in winter, and appeared to collect in flocks about mid February, preparatory to a move northwards. Courting and song were observed, but no direct evidence of breeding was obtained, although it is probable that the species does breed, but not in anything like the winter numbers.

Platea.—Plentiful winter and summer. Presumably resident.

Thaso.—Chaffinches plentiful 18th August. Probably breed.

Sicily.—Fair numbers breeding. Five incubated eggs 27th May, three fresh eggs 29th May.

Malta.—Winter visitor only, last date seen 17th March.

PETRONIA PETRONIA * (L.).

The typical form of the Rock-Sparrow was found breeding abundantly in the limestone cliffs of the "Cavas" in Sicily. Great caution was necessary in taking eggs, as in many cases the nests were close to those of *Passer hispaniolensis maltæ*, although the Rock-Sparrow seemed to prefer a small colony of its own, or at any rate to colonize locally about the cliffs.

The nests found were less bulky than those of "*Passer*," and more neatly "stowed away" in their hole or crevice, with less material protruding. The majority of nests contained small young about 1st June, but fresh clutches of seven, six, six, four eggs respectively were obtained between 26th May and 2nd June. Taken as a whole, they differ considerably from the Sparrows' eggs in being larger and having bolder, warm-umber coloured, markings, in which respect they seem to approach eggs of *Passer domesticus* rather than those of *P. hispaniolensis*.

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* For the reason of the omission of the third name in this case see footnote under *Coccothraustes*, p. 124.

It was frequently noted that there are some habits of the Rock-Sparrow that remind one of the Larks. One is raising its body rather high on the legs and then squatting close, a common habit with the Crested Lark. The flight and an occasional querulous note, too, sometimes recall the Crested Lark.

It is almost impossible to see the yellow throat-patch except at very close range, but the chequered appearance ot the mantle, larger size, and above all the terminal white spots on the tail-feathers when in flight, are sufficiently distinctive for the field-observer.

PASSER DOMESTICUS DOMESTICUS (L.).

PASSER DOMESTICUS ? subsp.

PASSER HISPANIOLENSIS HISPANIOLENSIS (Temm.).

PASSER HISPANIOLENSIS MALTÆ Hart.

PASSER ITALIÆ (Vieill.)

The distribution of Sparrows in the Mediterranean is remarkable. On the Grecian mainland, in the Ionian Islands and Grecian Archipelago, Smyrna and Cyprus, the Sparrow was *P. domesticus*, and no other form of Sparrow was found. In Greece, out in the wildest country *P. domesticus* would be found in plenty around the herdsmen's huts, where one of the chestnut-headed Sparrows might have been expected to occur.

Around Gibraltar and in Sardinia, in the towns and villages *Passer domesticus* was found, and in the country *P. hispaniolensis*; on the Italian mainland and in Crete *Passer italiæ*, and in Sicily and Malta a form intermediate between *P. hispaniolensis* and *P. italiæ* (*P. hispaniolensis maltæ*), but inclining to the former, since the flank-streaks are never entirely lacking.

In Egypt, around the coast typical *P. domesticus* was found resident, while in the Nile Delta and its vicinity, in addition to typical *P. hispaniolensis* as a winter visitor, a Sparrow approaching *P. domesticus indicus*, and quite noticeably distinct in the field from typical *P. domesticus* by reason of the brighter contrasts of light chestnut and lavender-grey on the dorsal side, was found in winter, apparently as a resident.

Note.—*P. hispaniolensis hispaniolensis* was first seen at rt Said on the 20th of October, a large flock. On 27th October another large party of Sparrows, probably *P. hispaniolensis*, flew overhead, going south, and specimens were obtained near Damanhour in January

[The House-Sparrows obtained at Damanhour (Egypt) in January and referred to above, appear to be somewhat intermediate between *P. d. indicus* and *P. d. niloticus* recently described by Messrs. Nicoll and Bonhote (Bull. B.O.C. xxiii. p. 101). The nape has more grey and not so much chestnut as in *P. d. indicus*, and is more like that of *P. d. niloticus*; the cheeks and under parts are greyish, not so pure white as in *P. d. indicus* and *P. d. niloticus*. No specimens of House-Sparrows from the coast (which Lynes states were like typical *P. domesticus*) were obtained.

A male specimen of *Passer italiæ* from Suda Bay, Crete (June 22, 1906), is indistinguishable from typical examples, and this seems to indicate a considerable eastward extension of the range of this species.—*H. F. W.*]

EMBERIZA CALANDRA CALANDRA L.

Emberiza calandra Linnæus, Syst. Nat. ed. x. p. 176.

Egypt.—The Corn-Bunting is evidently a winter visitor in small numbers (*vide* 'Ibis,' July 1908). At Port Said it was seen on 10th November, after which small parties were observed now and again, until 9th December, but this is not a suitable place for wintering.

Crete.—The species was met with wintering, but no evidence was seen of its breeding, the winter visitors apparently leaving in flocks between 8th March and 4th April.

Athens.—Between the 13th and 23rd April numbers were apparently migrating, but may have been breeding also.

Malta.—The Corn-Bunting was found resident and breeding. In mid-winter its "chartte" was frequently heard.

[The two specimens from Port Said (Dec. 9, 1903) are very grey on the upper parts.—*H. F. W.*]

EMBERIZA CIRLUS L.

The Cirl Bunting was not met with in Egypt and not for certain in Crete. At Platea in mid-winter it was found plentiful. In Sicily it was breeding commonly, four nests of eggs partially incubated having been found between 25th May and 2nd June. In Sardinia the species occurred in winter, and was about to breed on 3rd May. In Malta it was never met with.

EMBERIZA HORTULANA L.

Egypt.—Ortolans passed through on migration in small numbers during September. On 8th September they were rather plentiful in parties from four to nine strong. On the 12th, when the ship was at sea a few miles north of Port Said, a single Ortolan was seen.

Crete.—The species was found to be a summer visitor in moderate numbers, arriving in flocks from 8th April. Some probably passed on further north, while many were paired, courting and singing on the 25th, while breeding flocks were still to be seen about. By the 28th these migrants seemed to have departed.

Malta and Sardinia.—On migration, 25th April and 3rd May respectively.

The stomachs of specimens collected in Crete contained small beetles, snails, and a few seeds.

EMBERIZA CÆSIA Cretzschm.

Cretzschmar's Bunting was found as a summer visitor to Crete and Athens and probably also to Smyrna, where it was plentiful on 7th August. In Egypt an adult female was shot on 25th August, and one or two at a time were seen in September.

Crete.—The species arrived on 8th April in small parties of both sexes. Some individuals seemed to pair at once and start breeding, others passed on.

Athens.—Between April 13th and 22nd Cretzschmar's Bunting was plentiful, frequenting the lower slopes of the rocky and sparsely scrub-clad hills. On the 16th, a pair (the female having one soft-shelled egg in the uterus and two ripe ones in the ovary) were shot as they sat together on a pile of stones. During the breeding-time the birds were found quite easy of approach, and decidedly less obtrusive than the Cirl Bunting. The call, or alarm-note is decidedly sharp for a Bunting, and rather reminded me of that of a Wagtail.

[One specimen was obtained in Crete (April 8th) and this was sexed as a doubtful female, but I think it is a male. It is, however, very pale all over, the rufous parts being especially so; on the back and rump it is sandy rather than rufous. The wing measures only 80 mm., which is small for a male.—*H. F. W.*]

Emberiza schœniclus canneti (Brehm).

This race of the Reed-Bunting was found and obtained in winter in Egypt and at Platea. In Egypt it is apparently a scarce winter visitor, and seemed to arrive about mid-November, but the birds were very shy indeed, and easily overlooked. This is equally true of those found at Platea.

Melanocorypha calandra calandra (L.).

The Calandra Lark was not observed in Egypt or Crete. At Platea in mid-winter there were occasional flocks on the Missolonghi Plains. In Sicily they were very abundant and seemed to be nesting on 23rd May, but no nests were actually found, though on 6th June a young one able to fly was observed.

Calandrella brachydactyla (Leisler).

The typical race of the Short-toed Lark was found as a summer visitor at Athens, Malta, Sicily, Sardinia, Alicante, and Algeciras. In Crete Short-toed Larks, presumably of the same race as that found at Athens, passed through on migration between 21st March and mid-April, but apparently did not stop to breed there.

Athens.—Between April 13th and 23rd there seemed to be two distinct races of Short-toed Larks: one (represented by specimens Nos. 168, 169, 176, 178, 179) light rufous in colour, by 22nd April was mostly paired and courting, and the males were singing; the other (represented by specimens Nos. 173, 180, 186) sandy-grey in colour, was in flocks all the time, not singing, and all extremely fat, whereas specimens of the former race were all quite thin. The former were most plentiful on the flat country near the sea, the latter on the rocky sloping ground at the foot of the Hymettos Hills.

Malta.—The species arrived about 14th April and commenced to lay about 1st May. On 23rd June a nest contained one young and two chipping eggs.

Sicily.—Very abundant, breeding in the plains along with the Calandra Larks at the end of May.

The stomachs of specimens examined contained a mixture of seeds and insects.

[Specimens of *C. b. brachydactyla* vary individually, especially in the amount of rufous on the head and nape, and all the birds collected in Greece and Crete appear to me to be of the typical form.—*H. F. W.*]

CALANDRELLA MINOR HEINEI (Hom.).

Short-toed Larks passed through Port Said on migration from the end of August to the third week of October.

Some Short-toed Larks were seen but not obtained at Damietta on 22nd November. These would possibly have been *C. minor nicolli* Hartert (Bull. B. O. C. xxv. p. 9).

[The only specimen obtained was a female at Port Said on October 21st, 1906. This is undoubtedly an example of *C. m. heinei*, which is much greyer on the upper parts than either *C. m. nicolli* or *C. m. minor*. Dr. Hartert has been kind enough to confirm the identification of this specimen. This bird has not previously been recorded from so far to the westward as Egypt.—*H. F W.*]

GALERIDA CRISTATA (Linn.).

All Crested Larks met with were apparently quite sedentary; no migratory or even seasonal movement was ever noticed. Even in autumn they never seem to have any fat on them to speak of. Although the species figures in the list of Malta birds there do not seem to be any in the island now, and it is suggested that the specimens were perhaps procured at Malta market, in which case it is most probable that they were brought over from Sicily or Tunis, from which places the market receives pretty regularly a supply of Ducks, Barbary Partridges, Senegal Turtle-Doves, and other species.

GALERIDA THEKLÆ THEKLÆ Brehm.

Plentiful at Vagos Bay, Portugal, very noticeably small and Wood-Lark-like in appearance, and frequently perching in medium-sized ilex trees.

GALERIDA CRISTATA NIGRICANS Brehm.

These Crested Larks, the dark coloration of which at once draws the attention of the observer, were met with at Damanhour, where the rich-soiled cotton-fields and paddies owe their existence to abundant irrigation with the waters of the Nile. Very plentiful and confiding, the birds were constantly met with on roads along which passed all day a stream of camels, carts, and human traffic.

Damanhour is evidently well inside the area of their distribution. No other form of Crested Lark was seen there, but at Esbet Kourched, about twenty-five miles further away from the Nile, *G. c. nigricans* seemed to be entirely, or at any rate almost, replaced by *G. c. altirostris*, while between the two places both forms were seen alongside one another, but this, it must be noted, was in autumn and winter.

GALERIDA CRISTATA ALTIROSTRIS Brehm.

Crested Larks of this race were found at or near the Mediterranean Sea of Egypt, but nowhere plentifully. In the field it is indistinguishable from the typical Crested Lark.

[Two specimens collected,—Damietta, November 22nd; Esbet Kourched, December 19th.—*H. F. W.*]

GALERIDA CRISTATA CAROLI Hartert.

These birds were plentiful in the sandy and poorly cultivated country in the vicinity of the fresh-water canal that joins Cairo and Ismaïlia about fifteen miles from the latter place. The peculiar bleached appearance of the lower back, rump, and upper tail-coverts in mid-winter was very noticeable.

From a consideration of the localities in which these three latter forms of Crested Larks were found, it would seem that *G. c. nigricans* inhabits only the rich-soiled delta and its vicinity, while *G. c. altirostris*, whatever may be its distribution to the southward, frequents the sandy, uncultivated strip of country which borders the Mediterranean practically the whole way from Port Said to Alexandria. More specimens are required, however, to define completely the limits of *G. c. altirostris* and also those of *G. c. caroli*.

[Three specimens were collected at Mahsameh, near Ismaïlia, and by the kindness of Dr. Hartert and Mr. Nicoll I have been able to compare these very carefully with a series of *G. c. caroli* from the typical locality—the Wadi Natron. They agree exactly in coloration, and although they appear to be slightly smaller in size I think a larger series might show that they came well within the measurements of typical *G. c. caroli*.

				mm.		mm.
♂.	Dec. 5, 1907.	Near Ismaïlia.	Wing	104	Bill from nostril to tip.	13
♂.	Dec. 6, 1907.	do.	do.	104	do.	13½
? sex.	Dec. 6, 1907.	do.	do.	107	do.	13
♂.	Mar. 19, 1910.	Wadi Natron.	do.	106	do.	14
♂.	do.	do.	do.	109	do.	14
♀.	Mar. 18, 1910.	do.	do.	101	do.	broken
♀.	Mar. 23, 1910.	do.	do.	100	do.	13

H. F. W.]

Galerida cristata meridionalis Brehm.

Only met with in Crete, where it was plentiful. In winter the birds were mostly in scattered parties of 4–8 strong, pairing about the first week of April and commencing to lay not earlier than mid-April. On 26th April one of these birds was flushed from four fresh eggs. Six specimens obtained.

Galerida cristata cristata (L.).

In Cyprus, on 11th October, Crested Larks were found plentiful in parties. One male, curiously enough, was giving at noon a full spring-song from a clod of earth. This was, of course, exceptional. On dissection, this bird's testes were found to be quite small.

[The Cypriote bird has been named *G. c. cypriaca* by Dr. Bianchi, but the specimens collected by Lynes do not appear to me to be distinguishable from the typical form.—*H. F. W.*]

GALERIDA CRISTATA subsp. inc.

Crested Larks were found very abundant at Lemnos between 22nd August and 6th September, in more or less scattered parties consisting apparently of one or more families.

[The specimens obtained from Lemnos are in fresh autumn-plumage, and are paler, more greyish, and less reddish than specimens of *G. c. meridionalis*, and do not match exactly any race of Crested Lark which I have been able to examine.—*H. F. W.*]

LULLULA ARBOREA ARBOREA (L.).

In Egypt the Wood-Lark appeared to be a scarce winter visitor, making its appearance about 18th November, on which date a young female was shot from a small party of Wood-Larks in company with some Sky-Larks. On 21st November, at 2 P.M., when the ship was at sea, ten miles north of Port Said, a Wood-Lark passed with laborious flight close to the water's surface southward bound.

In Crete this species was plentiful and resident, their numbers not apparently increased by migration. During winter, and up to 1st March, the birds were mostly in parties of from three to eight. Some pairs were observed on 7th March, and song, not heard hitherto, commenced soon afterwards. On 28th April a female was found sitting very close on a nest of four nearly fresh eggs in young corn, but this was a late date, as parents carrying food had been seen from 1st April onwards.

At Athens a young bird quite a week out of the nest was obtained on 21st April.

Near Platea, in mid-December, large flocks were found on the flat fallow lands of the Missolonghi plains, while small family (?) parties were also observed among the scrub-clad hills.

At Smyrna, on 4th October, Wood-Larks were plentiful on rising ground near the pine-clad hills. One male was singing very sweetly from a stone.

Sicily.—Young, not long out of the nest, were observed on 2nd June in the Cava district.

Gibraltar.—In the cork-woods Wood-Larks were in full song on 20th February, and were also in pairs on the tops of the scrub-clad hills above. There is an authentic record of a nest with eggs in the low ground of the cork-woods in March, and the species is a fairly plentiful breeder in the Coto Doñana, where a nest of young about five days old was found on 9th May. (Irby did not record breeding in Gibraltar.)

At Malta the species was never observed, neither was it met with between 22nd February and 6th August in Lemnos, Mitylene, Thaso, or Marmarice.

The stomachs of specimens examined contained seeds, snails, caterpillars, and grasshoppers.

[Specimens were obtained in Egypt, Crete, Greece and Smyrna, all of the typical form.—*H. F. W.*]

ALAUDA ARVENSIS CANTARELLA Bp.

This race of the Sky-Lark was met with at Platea in winter, in flocks up to 100 strong on the dry plains, and in Egypt as a winter visitor in moderate numbers. At Port Said the first bird was seen on 20th October. The numbers then increased, and by the end of the month Sky-Larks had become plentiful, and were almost abundant throughout November, after which the passage subsided and the numbers gradually assumed winter proportions, small in the Port Said districts, but considerable near the Nile Delta and Ismaïlia.

Sky-Larks seemed to follow the general rule in arriving at Port Said about daybreak. On 3rd November, at this hour, a Sky-Lark was found suspended in mid-air by one wing from an accumulated string of spider's web connecting two clumps of reeds. The bird had managed to get a complete turn of the web round the "wrist," and was thus firmly held a prisoner. It would certainly have succumbed to exhaustion had it not been rescued.

A Sky-Lark, no specimen of which was obtained, was found wintering plentifully in Sardinia and Sicily, also at Crete, where all seemed to depart by the end of February. At Malta also a Sky-Lark is a winter visitor in moderate numbers. Some were seen as late as the 30th March, but these individuals may have been migrants which had spent the winter further south.

[Specimens from Port Said were obtained from the 20th October to 15th December, and are all of this form, as is one from Greece in December.—*H. F. W.*]

ANTHUS CAMPESTRIS (L.).

Egypt.—The Tawny Pipit was not observed until 16th September, but may very likely have been overlooked earlier. There were two very pale-coloured birds, one of which was obtained. The species was last seen on 26th October, never more than a few at a time.

Crete.—Apparently a migrant only. First seen 1st April, then constantly in small parties not exceeding six. Still on passage on 28th April, up to which date no indications of breeding were observed.

Athens.—13th to 23rd April; plentiful on passage. Some, however, were paired, and there were indications by nuptial flights that these would breed there.

Lemnos.—Plentiful at the end of August and beginning of September, the majority apparently on migration, but a few of a generally lighter colour may have been in juvenile plumage and bred there.

Sicily.—Not seen 20th May–8th June.

Sardinia.—On migration in parties, 3rd–5th May.

[Three young birds obtained in Egypt (September 16th and 25th, and October 21st) are partly in juvenile and partly in first winter plumage, but there is no appearance of growing feathers upon them, and the moult may have been arrested at the time of migration.—*H. F. W.*]

ANTHUS TRIVIALIS (L.).

The Tree-Pipit was met with on migration only.

Egypt.—The passage was only a small one, starting as early as the last week of August or even earlier; small parties of three and four were met with off and on up to the third week of October. The Tree-Pipit's passage was then concluded.

Crete.—The first occurrence in spring was that of an emaciated specimen caught at sea off the north coast on 28th March. Flocks were noted on 11th April, and small flocks and parties were still passing through on 27th and 28th April. On 29th April a Tree-Pipit came on board ship at sea, forty miles west of Crete.

ANTHUS PRATENSIS (L.).

The Meadow-Pipit seemed to be the predominant winter visitor all over the Mediterranean basin; even at Malta and in "birdless" Italy the species was plentifully met with, frequenting not only open fields and plains, but also orchards and cultivated lands.

Egypt.—First noted on 23rd October, and soon becoming plentiful, the numbers varying from day to day, being greatest in the second and third weeks of October, after which they decreased, assuming winter-proportions by the second week of December. During their period of passage, Meadow-Pipits were often found in company with Red-throated and Water-Pipits in moist places, but when settled down in winter quarters they more often frequented drier spots than either of those species.

Crete.—Plentiful in scattered parties in winter. Between the 8th and 22nd March these winter Meadow-Pipits were noticeably forming into larger and more compact parties, perching high in the tops of plane trees, flying about up in the air in a restless manner, finch-like, in compact flocks. Their flight was swifter, and it even seemed with more "chirp" in their note than usual—in fact, under vernal influences behaving altogether in a singular manner. By 22nd March all seem to have departed, and there were no indications of any migrants passing through.

Malta.—The last of the winter Meadow-Pipits was noted 14th March, and no migrants appeared to pass through.

The stomachs of the specimens collected contained seeds and vegetable matter, small snails, beetles, flies, and other insects.

ANTHUS CERVINUS (Pall.).

The Red-throated Pipit was met with in Egypt (only) as an abundant winter visitor.

In dates of arrival, passage, and wintering, the Red-throated Pipit agreed exactly with the Meadow-Pipit. As Mr. Nicoll remarks ('Ibis,' July 1908), the note of this species is very different from that of the Meadow-Pipit, and was found to be a sure guide for recognizing the species. It may be described as a musical "chig" as against the squeaky "peet" of the Meadow-Pipit.

ANTHUS SPINOLETTA SPINOLETTA (L.).

The typical race of the Water-Pipit was found plentiful among the vegetation growing in the wetter places of the Mesolonghi marshes near Platea, mostly in scattered parties of from six to twenty in number.

ANTHUS SPINOLETTA COUTELLEI Savi.

ANTHUS SPINOLETTA BLAKISTONI Swinhoe.

These two races of the Water-Pipit were both found at Port Said in the autumn on migration. *A. s. coutellei* certainly stops to winter in moderate numbers, specimens having been shot on December 23rd and 30th, but the difference between the two races, in spite of the warmer coloration of *A. s. blakistoni* being often noticeable in the field, is not sufficient to permit of definite statements being made without obtaining specimens. Water-Pipits were first seen on 21st October, after which date some were usually found in the moister spots at the edge of Lake Menzaleh, though until the first week in December, when the winter visitors seemed to have come to remain, the numbers fluctuated considerably.

It was observed that these Water-Pipits had the habit of perching on bushes, noticeably on the tops of the tamarisks, whose bases stood in shallow water, that in appearance they were very like Rock-Pipits, and that their note was a little louder and deeper than that of the Meadow-Pipit.

[Two specimens of *A. s. blakistoni* were obtained (Port Said, October 21st and November 10th), and these are interesting as being from further west than this race has been previously recorded. Specimens of *A. s. coutellei* were obtained from October 25th to December 20th.—*H. F. W.*]

MOTACILLA FLAVA FLAVA L.

The Blue-headed Wagtail was observed from east to west of the Mediterranean as a migrant, in Spain also as a breeding-species, and probably in Sicily, where a Yellow Wagtail seen on 6th June was judged to be of this species.

Egypt.—The passage commenced at the end of August. On 8th September the species was plentiful, a fair proportion being adult males with fine blue heads. The numbers continued to increase, until at the end of September the maximum intensity of the passage was reached, the birds being often in large parties up to fifty strong, and in varied plumages from the bright yellow breast with clear blue head and light eye-streak of the adult male, to the almost white breast and dull greyish mantle and head of the young bird of the year. With the advent of October the migration seemed to be nearly concluded, and no certain record of the species later than 14th October was obtained.

Crete.—First seen 3rd April, a male in full plumage. On 27th April flocks were seen, and on 29th April, forty miles west of Crete, numbers came on board ship, several bedraggled with rain, and all more or less exhausted.

Athens.—13th–23rd April, plentiful in parties on migration, feeding among sheep and sometimes in company with *M. f. melanocephala*.

Lemnos.—Observed in large parties on migration, 20th August–6th September.

Malta.—Plentiful in April, and a few still passing as late as 7th May. All on migration.

MOTACILLA FLAVA PYGMÆA (Brehm).

This resident Egyptian race of the Yellow Wagtail was met with plentifully in December and January towards the Nile Delta (not at Port Said), frequenting the rich swamps and cotton-fields.

Remarkably brilliant in coloration, these birds were conspicuous objects, perching on the tops of the plants, the bases of which were generally growing in a few inches of water.

[The specimens, which are males, measure in the wing 77, 74, and 74 mm. They have white chins, and are heavily washed with dark olive on the flanks. One has no eye-stripe, another a small white stripe behind the eye, and another a white fleck behind the eye.—*H. F. W.*]

MOTACILLA FLAVA MELANOCEPHALA Licht.

Egypt.—I have no certain note of the Black-headed Wagtail between August and January, but it is known to winter ('Ibis,' July 1908).

Crete.—Spring-migrant, no evidence of breeding. First observed 19th March, male in full plumage, testes enlarging. On 27th March *flocks* were seen, and on 9th April the last, a single male, was noted.

[Two males collected March 19 and 27.—*H. F. W.*]

Athens.—Several small parties, evidently on migration, were observed on 13th April. They were sometimes in company with *M. flava flava*, feeding among sheep.

MOTACILLA BOARULA BOARULA L.

Egypt.—The Grey Wagtail was a sparing winter visitor, and, unlike the other Wagtails, was never seen in parties. The first was observed on 15th October, from which date onwards one or two might be found about pools of fresh or salt water.

Crete.—Winter visitor. Last one seen on 10th March. On 26th February an example in moult, with the black throat-patch half grown, was observed at close quarters.

Greece.—Found here and there in mid-winter.

Malta.—Fair numbers passed through on migration during October and early November. Some individuals stopped to winter and moved north, apparently very early, the following spring.

Sicily.—In summer plentiful on all the streams in the Cava district. Fresh eggs were found from 15th May onwards.

MOTACILLA ALBA ALBA L.

The White Wagtail was met with from east to west of the Mediterranean as a plentiful winter visitor.

Egypt.—The first two, in full winter-plumage, were seen on 26th September. Numbers increased quickly, and by mid-October the species had become plentiful, perhaps in places exceeding winter proportions, which seemed to be reached about the first week of December. No examples were ever seen in the summer-plumage, *i. e.* with more than a black crescent on the chest.

In some places it was found that the White Wagtails, which during the day had been scattered over a large area, were in the habit of selecting certain suitable spots in which to roost at night in company. One such roosting-place near Damanhour was a two-acre patch of sugar-canes divided into halves by the main road, along which a stream of traffic passed all day long, and well into the evening. At this season (December) the canes were nine or ten feet high with a luxuriant outgrowth of broad green leaves, and formed a dense jungle. As the sun dipped below the horizon, the air became alive with White Wagtails whisking into the canes from all points of the compass, settling at once on the leaves and staying there, not lifting and flying about as Starlings do. There must have been thousands of White Wagtails roosting in that patch. No other species seemed to be present. A similar phenomenon, but on a smaller scale, was also observed in January at Port Said.

Crete.—First observed 18th February, two birds moulting into summer-plumage. On 26th February birds in all stages of plumage from full winter to full summer were noticed. These were all judged to be winter visitors. On 27th March all seen were in full summer-plumage, and all appeared to have departed by mid-April. Migrants from further south did not seem to stop in Crete.

Malta.—As early as 9th March a migratory movement took place, all the birds being in, or nearly in, summer-plumage. Whether these birds were winter visitors or migrants from further south (it being observed that the migration *viâ* Malta apparently starts a fortnight or so earlier than that *viâ* Crete) was not clear. Last record 10th March.

[A female (Crete, March 1st) is moulting on the head, neck, breast, secondaries, and tail, while another of the same date has completed its moult.—*H. F. W.*]

CERTHIA BRACHYDACTYLA ULTRAMONTANA Hart.

Very plentiful at Corfu in mid-winter, frequenting the olive-groves. It is presumably resident there.

Observed at Platea in December and in family-parties in July, frequenting the oak trees chiefly.

[Only one specimen was preserved, and that from Corfu. Through the kindness of Herr Reiser, I have examined two others from Corfu and eight from Greece, and I can detect no difference in them, and think that they should all be referred to this race.—*H. F. W.*]

SITTA NEUMAYER NEUMAYER Michah.

The Rock-Nuthatch, a species the individuals of which are apparently everywhere quite sedentary, was found locally plentiful in Greece (Platea and Athens), Smyrna, the island of Mitylene, and Albania. It was not met with in Crete, where much suitable ground near the coast exists, but may perhaps be found among the unexplored mountains inland. Neither was it met with at Lemnos, where the formation and vegetation seemed identical with that of Mitylene, only forty miles away.

Both in winter and in the breeding-season the Rock-Nuthatch is a very noisy bird, and its rattling trills and varied cries may frequently be heard half a mile away. Among the Hymettos Hills, near Athens, numbers were breeding in April. On the 13th a nest with the female sitting on eight half-incubated eggs was found. This nest was situated in a much overhung cliff-face, in which the birds had selected a slight indentation and over it worked a roughly hemispherical crust of hard mud with an entrance hole in its centre. This, the nest-container, in outward appearance resembled the upper part of a "Cantaro" (Spanish porous water-pot) that had been broken off and placed against the face of the rock with the narrow mouth to the front.

The nest proper, inside the crust, was a snug and ample affair of grey hare's fur with a neat countersunk cup for the eggs, like that of a Great Tit. The whole was a most elaborate structure, and must have taken a long time to complete.

The eggs differed much from those of *S. europæa* in being larger, more glossy, rounder, and with large bold blotches and practically no spots or freckle-marks.

Three days later a pair was watched building a nest in a similar overhung place, but the birds seemed idle and not to do much. It was only the beginning of a nest, and in the lower part there was already some soft material, although the crust was not a quarter completed.

The stomachs of the birds collected were noted as containing spiders, beetles, grasshoppers, ants, and small black flies.

PARUS MAJOR.

The Great Tit was met with as a resident in Crete, Corfu, Sicily, Sardinia, Thaso, and Gibraltar. Neither at Athens nor Platea was the Great Tit seen. The Sombre Tit (*P. lugubris*) was noted there as the representative "Tom-Tit," whereas at Crete the Sombre Tit was not observed.

There are no Tits in Malta.

[The specimens from Crete are, I think, referable to the form *Parus major aphrodite* Mad., but they are perhaps slightly smaller. I agree with Dr. Hartert in considering the Cypriote and Grecian Great Tits to be the same.

A single specimen from Corfu seems to be of the typical form (*P. m. major*); a single specimen from Sardinia is, I think, of the Corsican form (*P. m. corsus*), as it has a large bill, a short wing, and is dull in coloration; the white on the outer tail-feathers is, however, as extended as in typical specimens, but this in my experience is not at any time a constant character.—*H. F. W.*]

PARUS CŒRULEUS OGLIASTRÆ Hart.

This Blue Tit was found an abundant resident in Crete.

[Only a single specimen was collected, and this seems to agree best with the form from Sardinia and Corsica.—*H. F. W.*]

ÆGITHALUS CAUDATUS MACEDONICUS (Dress.).

This race of Long-tailed Tit was found to be plentiful at Platea, and two (both juvenile) were shot from a family-party on 14th July.

At Marmarice, a small family-party of Long-tailed Tits met with in the pine-woods on 25th July was probably also of the same race.

[The two specimens are in juvenile plumage; the bellies are dark and the backs rust-coloured, otherwise they are much like *Æ. c. roseus* in the same plumage. An interesting point is observable in the dark streak over the eye, which in these specimens is black and extends to the base of the bill, but it so happens that the birds have moulted in this part, and these feathers are those of the first winter-plumage. In *Æ. c. roseus* this streak extends to the bill in the juvenile plumage, but it is brown, while in the adult it is black, but does not reach the bill. The ring round the eye is noted as orange-red; Herr Reiser describes it as sulphur in the adult.—*H. F. W.*]

LANIUS MINOR Gm.

The Lesser Grey Shrike was met with as a plentiful autumn migrant in Egypt and the Grecian Archipelago.

Egypt.—The passage was well under way on 25th August, and although subsequently, on some days, the species was quite abundant, the numbers never reached anything like those of the Red-backed Shrike, and the passage was concluded much earlier. After mid-September the Lesser Grey Shrike had ceased to be plentiful, and the last record for

Port Said is of a solitary example on 26th September. The following December, near Ismaïlia, a Grey Shrike was observed which looked like *L. minor*, but it was not obtained. None were seen elsewhere.

Smyrna and Mitylene.—Plentiful on migration between 7th and 13th August. No records for Crete and Athens in spring.

LANIUS SENATOR.

The only place eastward of Malta where the Woodchat was observed was at Athens, and there the species commenced to arrive in some numbers on 22nd April. At Crete the species was not observed, but was probably overlooked during the week spent there at the end of April, as it is known to breed there.

Malta.—The Woodchat was an abundant summer visitor. First arrival noted 18th April, plentiful on 27th April. Many nests were found, the first eggs being laid during the second week of May.

Sicily, Sardinia, and Spain.—The Woodchat was a plentiful summer visitor, and breeding.

[No specimens were obtained.—*H. F. W.*]

LANIUS NUBICUS Licht.

Only a few met with in autumn at Thaso, 18th August, where a young female was obtained, and at Smyrna on 7th August; some, all immature, were almost certainly observed, but none secured.

Not observed in Egypt from August to January, or in Crete in February, March, and April.

LANIUS COLLURIO L.

The Red-backed Shrike was met with in the Grecian Archipelago, Asia Minor, and Egypt, as an autumn migrant only.

Egypt.—The passage of this and *L. minor* was very conspicuous, owing to the birds' size and to the fact that when looking out for food they take up a position of vantage on top of a post or bush.

On 25th August the species was already abundant, quite half being males in full plumage. By the 1st September dull-plumaged birds had become predominant, and the last male in full plumage was seen on 30th September—evidently a solitary specimen, as none had been noticed for a fortnight previously. The numbers slowly decreased from mid-September to the last week of October, when the passage had practically ceased, for only two single birds were observed later (8th and 13th November).

In the early evenings a few were seen arriving, coming from high in a slanting-down direction.

Smyrna, Mitylene, and Lemnos.—7th August–6th September. Plentiful on migration.

MUSCICAPA STRIATA STRIATA. (*Muscicapa grisola,* auct.)

The Spotted Flycatcher was met with breeding near Algeciras, but everywhere else as a migrant only.

Egypt.—Very abundant migrant from the last week of August to about 7th October, the numbers fluctuating daily. The passage then decreased gradually until the end of October, when it might be said to have ceased, the only later record being of a solitary bird on 8th November. No examples in juvenile plumage were observed.

Athens and Crete.—Not observed 3rd February–28th April.

Thaso and Lemnos.—17th August–7th September, some migrating. Plentiful on latter date.

Malta.—Passage started during the last week of April. On 5th May the birds were abundant.

Sicily.—On one occasion two, perhaps three individuals, were seen in a certain spot so late in the year as 28th May, but as these could not be found again two days afterwards, they were thought to be late migrants.

MUSCICAPA HYPOLEUCA HYPOLEUCA (Pall.). (*Muscicapa atricapilla,* auct.)

The Pied Flycatcher was met with as a migrant in moderate numbers from Crete to the westward.

Crete and Athens.—Single males seen 22nd and 25th April respectively, the latter in very brown plumage: testes small.

At sea 40′ west of Crete.—29th April, several individuals of both sexes on migration came on board. It is of interest to note that the stomach of one of these birds contained some insect food which could not have been obtained on board ship; the stomach of the other was empty.

Malta.—18th April, some seen (and perhaps one on 12th April). 25th April, both sexes plentiful on migration.

MUSCICAPA HYPOLEUCA SEMITORQUATA Hom.

Egypt.—A single juvenile only, obtained on 11th September.

[This is a young bird in brown plumage, sexed as a male. The white spot on the primaries shews to the extent of 3 mm., and the tail-feathers have more white than in *M. h. hypoleuca*, the two outer pairs having white outer webs and a yellowish-white line halfway up the centre of the feather; the next pair is the same, but the white on the outer web does not extend quite to the tip; the next pair has part of the outer web yellowish white. Dr. Hartert agrees with me in considering it a specimen of this form.—*H. F. W.*]

MUSCICAPA COLLARIS Bechst.

Observed as a migrant, but only on very few occasions.

Malta.—A single male in full plumage was seen 22nd April, and a similar bird was obtained on 27th April at the same spot. This might have been the same bird, but as five days had elapsed, and the species is only a migrant, it seems unlikely.

Sardinia.—About 1st May, 1907, an adult male was observed.

MUSCICAPA PARVA Bechst.

At midday on 10th October, 1906, when the ship was 25′ north of Alexandria, a Red-breasted Flycatcher, either a young one or a female, settled in the rigging, and after half an hour's rest, flew landwards. The bird was tired and could be approached within a few feet. This species owes its introduction into the list of the birds of Egypt to Mr. Nicoll's observation of a single female at Cairo, 11th November, 1906.

PHYLLOSCOPUS COLLYBITA COLLYBITA (Vieill.).

The Chiffchaff was met with all over the Mediterranean in fair numbers as a winter visitor only.

Egypt.—No Chiffchaffs seemed to have arrived by the end of September, and it was not until October was well advanced and Willow-Wrens had, at last, begun to decrease, that the passage of the former began to be pronounced. On 25th October a note was made that of the *Phylloscopi* present about two-thirds were Chiffchaffs and one-third Willow-Wrens, and on 28th October that all observed were, so far as could be seen, Chiffchaffs. The passage proceeded steadily through November, the numbers never approaching those of the Willow-Wren, and the species did not appear to have settled down to winter proportions until mid-December. Even so late as 20th December, at 10 A.M., when we were carrying out target-practice fifteen miles off Rosetta, a Chiffchaff, apparently a belated migrant, came on board. Early on 4th December several Chiffchaffs were singing "chiff-chaff," the only occasion on which the song was ever heard. Curiously enough, the morning was not sunny.

Crete.—Last example noted 29th March.

Greece, Sicily, Italy, Sardinia, Gibraltar.—This species occurred in winter in fair numbers. *Malta.*—The same may be said in this case, the last having been noted on 17th March.

In its winter-haunts the Chiffchaff is shy and unobtrusive, quietly playing about the foliage, and now and then uttering its low call-note "swee-eet."

[All the Chiffchaffs obtained belong to the typical form. They are as follows:—*Port Said,* Dec. 23; *Crete,* Feb. 10; *Greece,* Dec. 3, 7, and 17; *Malta,* Nov. 19.—*H. F. W.*]

PHYLLOSCOPUS TROCHILUS TROCHILUS (L.).

The Willow-Wren was met with from east to west of the Mediterranean as a migrant only, but nowhere in winter.

Egypt.—The number that passed through Port Said on migration was astonishing. On 23rd August the passage was in full progress, and the trees and bushes were full of Willow-Wrens. This continued almost without fluctuation up to the last week of October, when, having, so to speak, been gradually relieved by the Chiffchaff, the passage of the Willow-Wren came almost to an end, the last record being 18th November, when a single bird was noticed among the Chiffchaffs, and shot for identification. Some, but not many, were in unmoulted greyish plumage. Like all the other Warblers, the Willow-Wrens would sit about in the trees and bushes sleepily during the day, become lively and feed towards evening, then gradually filter away to the south about sunset.

Crete and Athens.—Not observed between 3rd February and 28th April.

Mitylene and Lemnos. — 13th August–6th September, numbers on migration.

Cyprus.—11th October, a small party on migration.

Malta.—First observed 3rd April (male obtained). Others seen later, but never plentiful.

[One obtained on October 20th at Port Said is in worn summer-plumage and has not yet moulted. All the specimens obtained were of the typical form.—*H. F. W.*]

PHYLLOSCOPUS BONELLI BONELLI (Vieill.).

Bonelli's Warbler was met with on migration in Egypt and was breeding near Algeciras.

In *Egypt* the passage was an early one, and was concluded by mid-September. Numbers were seen at the end of August, and were conspicuous when resting in the trees by reason of their grey appearance among the quantities of Willow-Wrens in their newly acquired primrose-yellow dress.

Algeciras.—Plentiful and breeding. On 23rd June an adult male and female were obtained. The male was singing. The female had one egg still in the ovary, apparently the last one to be laid.

[No specimens were obtained in Egypt.—*H. F. W.*]

PHYLLOSCOPUS SIBILATRIX ERLANGERI Hart.

This race of the Wood-Wren is represented in the collection by one specimen obtained on board ship at sea, 40 miles to the westward off Crete on the 29th April. The stomach was empty. Two Wood-Warblers, evidently on migration, seen at Crete and Athens a few days previously, were possibly of the same race.

[Although I can find no trace of a sheath on any of the feathers, the plumage of the bird is so perfect that it would seem to have just undergone a complete moult.—*H. F. W.*]

CETTIA CETTI CETTI (Marm.).

Egypt, Malta.—Cetti's Warbler was not met with.

Crete.—Plentiful resident, frequenting the watered gullies at low elevations near the sea-coast. A specimen shot on 28th April was just about to lay eggs.

Platea.—Plentiful resident winter and summer.

Sicily.—Plentiful in the Cavas and Lentini marshes, always near water. 26th May, young flew from a nest; 28th May, four fresh eggs; 2nd June, three fresh eggs.

There seem to be three distinct sounds which Cetti's Warbler makes:

(1) *The stridulous cry*, emitted both in winter and in the breeding-time, most frequently in the latter. This cry does not necessarily imply that the bird has been disturbed, though it is often uttered on the approach of an intruder. It may be syllabled wheech-a-wheech-a-wheech-a-wheech, and was constantly heard throughout February as well as in the breeding-season.

(2) *The song*, uttered only in the breeding-season, like a Nightingale's song cut short.

(3) *The alarm note*, uttered at *all* seasons when alarmed. A succession of single "tchuk's" very like the alarm-note of Savi's Warbler in the breeding-season.

Although as a rule very shy and skulking, but withal inquisitive and excitable, when agitated over its nest or young, Cetti's Warbler becomes, like Savi's Warbler, quite fearless, and will approach within a few feet of the intruder.

No migratory movement was ever detected, which, considering the feeble flight and rounded wings of the bird, is not surprising.

[Four specimens from Crete are typical. The stomachs are noted as containing snails, insects, and a few grass-seeds.—*H. F. W.*]

LUSCINIOLA MELANOPOGON MELANOPOGON (Temm.).

The Moustached Warbler was met with in Sicily in winter and summer, being evidently resident. It was not observed in Egypt, but this was no doubt, as the late Captain Shelley has pointed out, due to the fact that it is very local. In Sicily, at the Pantana di Lentini on 6th and 8th June these birds were abundant and breeding. Many full-fledged young were about, while old birds were in full song. Fourteen nests were found, from three of which young had flown. Six contained respectively four, three, three, three, three, three eggs, all fresh, and the remainder were nearly ready for eggs. These observations made it evident that second broods were being reared.

Besides the greater contrast of dark and light colour, the pronounced eye-streak and slimmer appearance, and the habit of raising the tail up to the vertical served to distinguish this species from the Sedge-Warbler, in addition to which the song, uttered from the tops of the water-plants, seemed sweeter, more refined, and frequently opened with a succession of about four musical, high-pitched notes, after the manner of the Nightingale. The alarm-note was a jarring rattle. The nests were all over water from one to two feet above it, some in the forks of small "salix" saplings, surrounded by sword-grass growing in about six inches of water, others in the broken-down bases of reed-clumps at the edges of clearings in the swamp, in water from three to four feet deep, but not apparently in the dense reed-beds.

Some nests were built mainly of rotting vegetation, picked up from the refuse floating on the water, and this having been put on wet had become stiff in drying, and made a wiry framework; others were of dry soft material with tamarisk "fluff" ornamentation externally; some were hardly lined at all; one was beautifully lined with a profusion of large soft feathers of the Water-Rail and Little Bittern, placed loosely around the interior, as in a Swallow's nest.

The eggs were all a little larger, a little more green in colour, and a trifle more spotted, than the average Sedge-Warbler's eggs.

In the following January one or two Moustached Warblers were observed when we were shooting from canoes on the Pantana di Lentini. They were extremely shy, and were creeping about the dense vegetation far out in the swamp.

Acrocephalus arundinaceus arundinaceus (L.).

Egypt.—The Great Reed-Warbler was probably overlooked, as the first specimen was not seen until 31st October. None were observed after 25th November, and the species was thought to be a migrant only, not remaining to winter.

Platea.—Observed in the Missolonghi marshes in mid-July.

Sicily.—Plentiful and breeding in June, both at the Pantana and on the Lago di Lentini.

In the stomachs of specimens obtained at Port Said were large spiders and beetles.

Acrocephalus stentoreus stentoreus (H. & E.).

The Clamorous Reed-Warbler, met with in Egypt only, was not observed until 30th September, but as the species is resident it must have been overlooked, very likely during the moult, for until the end of October the birds were quite silent, and afterwards often obtrusively noisy, uttering a series of single loud sharp chacks at one or two seconds' interval.

In appearance the bill is so long and slender that the Clamorous Reed-Warbler can at once be recognised from the Great Reed-Warbler.

[Many of the specimens obtained in September and November are in full moult. The stomachs are noted as containing mantides, caterpillars, and spiders.—*H. F. W.*]

Acrocephalus streperus (Vieill.).

Acrocephalus palustris (Bechst.).

The Marsh- and Reed-Warblers are so impossible to distinguish in the field except during the breeding-season, that without obtaining specimens very little definite information concerning the two species could be acquired. The Reed-Warbler was breeding abundantly in Sicily (fresh eggs from 30th May onwards) and migrated in fair numbers through Egypt, a few stopping to winter; the Marsh-Warbler also migrated through Egypt, two specimens having been obtained at Port Said on 6th September and 27th October.

ACROCEPHALUS SCHŒNOBÆNUS (L.).

Egypt.—The Sedge-Warbler was an abundant migrant. The passage commenced in the last week of August, and increased steadily from week to week until its maximum was reached at the end of September, when Sedge-Warblers might be flushed from almost every other bush. The passage then decreased, and by November had become merely the chance arrival of a stray bird now and again, a state of things that lasted until 9th December, after which the species was not seen. On the 17th September, at 5 P.M., a young male Sedge-Warbler with a large caked lump of mud on its leg, possibly the cause of its exhaustion, came on board the ship at sea between Damietta and Port Said, and was captured. The late date of the close of the migration suggests that some individuals winter in Egypt.

Crete.—Migrant only. First seen 27th March, when the birds were plentiful.

Lemnos.—Abundant on migration, 22nd August.

Malta.—Migrant only. Still a few on passage, 5th and 6th May.

HYPOLAIS POLYGLOTTA (Vieill.).

The Melodious Warbler was met with breeding plentifully near Algeciras between 23rd June and 5th July. Fresh eggs and young lately out of the nest were found. Although it likes to breed near water, this is by no means a necessity.

HYPOLAIS PALLIDA PALLIDA (H. & E.).

At Port Said the first Pallid Warbler was seen on 20th September, after which one or two occurred now and again until 20th October, which is the last record. All were in moult, the last specimen having only one tail-feather. These birds were evidently migrants, as Port Said has no suitable breeding-place for them.

At Platea in mid-July family-parties were about, and specimens were obtained.

Note.—In Malta, Sicily, and Sardinia at no season was any species of *Hypolais* observed.

Sylvia hortensis crassirostris Cretzschm. (*S. jerdoni* auct.)

A male Eastern Orphean Warbler singing among ilex trees, and very likely about to breed (testes large), was shot near Athens on the 22nd April.

No Orphean Warbler was observed in Crete in spring or in Egypt in autumn. At Lemnos an Orphean Warbler (? race) on migration was seen on 23rd August.

Sylvia atricapilla (L.).

Egypt.—Scarce migrant. Several seen on 7th October, last noted 20th October (a single male with black head).

Crete and Athens.—Not observed between 3rd February and 28th April.

Platea.—A few in winter. A male shot 10th December.

Corfu.—A few seen in mid-winter.

Malta and Sardinia.—Not observed in winter or even on migration.

Sicily.—Breeding abundantly in the "Cavas." Four nests of nearly fresh eggs, 25th May to 3rd June.

Gibraltar.—Plentiful on the Rock in winter. Very abundant in flocks in the cork-wood on 9th March, when the males and females all, or nearly all, seemed to be in separate flocks, according to sex. (This was also observed in Jerez province up to last week of March in 1910.)

Sylvia communis communis Lath.

For the most part the Whitethroat was only met with as a plentiful migrant from east to west of the Mediterranean, but its presence in Sicily on 22nd May, and at Platea in mid-July, seemed to indicate breeding at those places. On migration the Whitethroat is very skulking.

Egypt.—Many pass through. Dates much as for the Lesser Whitethroat, but the bird was not quite so plentiful or so tame as that species.

Crete and Athens.—First arrivals 29th March. Abundant by 7th April, after which the species decreased, though still passing 28th April.

Thaso.—Very abundant on migration, 17th August.

Lemnos.—Plentiful on migration, 20th August–6th September.

Malta.—Plentiful on migration.

SYLVIA CURRUCA CURRUCA (L.).

The Lesser Whitethroat was met with as a migrant only.

Egypt.—Already migrating abundantly on 23rd August, it continued to do so till 20th October, after which none were observed. Numbers fluctuated more, day by day, in October, than in the earlier part of the passage. These birds were very tame, and even fatter than most others.

Crete.—Only a few seen, first on 29th March, last observed on 25th April.

Cyprus.—A small party on migration seen 11th October.

Malta.—The only record was an adult female obtained on 5th August, with minute ovaries. This was thought to be a stray or lost bird, perhaps disabled during the previous spring migration, as no other migrants were passing so early.

The stomach contained seeds, and the whole intestine was choked with half-digested hard seeds.

SYLVIA RUEPPELLI Temm.

Except for two migrating adult males (one obtained) seen at Port Said on 10th September, Rueppell's Warbler was only met with at Crete and Athens during the spring. It was not found at Platea at the end of July, but may have been overlooked. At Crete it was an abundant summer visitor. The first to arrive were the males, starting on the 24th March and increasing daily until the first females came ten days later, when the birds at once paired. The males sang directly they arrived (before the females came) and also seemed to separate each into its own selected breeding-site

Nest-building started about 25th April. The ship left on 28th April, too early for eggs. In all its habits and in general appearance Rueppell's Warbler at once reminded me of a large, comparatively short and stiff-tailed Sardinian Warbler. The song is like that of the Sardinian Warbler but fuller and more musical; it is less wheezy, and, as in that species and many of the other Sylviinæ, is frequently uttered on the wing in conjunction with the butterfly-like movement of the wings during the nuptial season. The alarm-note is also similar to the continuous "clock-winding rattle" of the Sardinian Warbler, but is considerably harsher and louder, more chirpy and less wheezy, reminding one of two rather large pebbles being knocked together rapidly, and is occasionally terminated by a musical "pit-pit."

The birds frequented the scrub on the dry ground, and did not seem partial to the moist places with which the scrub on the hillside was interspersed.

SYLVIA MELANOCEPHALA MELANOCEPHALA (Gm.).

From Egyptian records it appears that there is undoubtedly some migratory movement among the individuals of this species, but unquestionably the majority are resident, and observations in Crete, Greece, Malta, Sardinia, and Spain, where the species is quite plentiful, did not indicate perceptible alteration of numbers by migration. In structure the bird is ill-adapted for long flights.

The stomach of one bird (Malta, January 13th) contained grass-seeds and green "weed."

Egypt.—Winter visitor only. First observed 3rd November, though subsequently single birds were seen now and again. A male Sardinian Warbler was met with at sea ten miles north of Port Said on 21st November.

Crete.—Resident, breeds. First nest commenced 7th March, first egg 20th March.

Sicily.—Curiously not one individual was seen in the Cavas between 20th April and 6th May, although seemingly in every respect a suitable locality. Possibly the abundance of Subalpine and Blackcap Warblers there may afford an explanation.

In the breeding-time both the Sardinian and Spectacled Warblers are much addicted to the singing, butterfly-like flight indulged in by most of the Sylviinæ. All observations appeared to shew that neither of these speciess rear more than one brood in the season.

SYLVIA CANTILLANS. (*S. subalpina* auct.)

Subalpine Warblers to the west of Greece would probably be of the typical race. None were obtained, however.

In Sicily in summer Subalpine Warblers were extremely abundant in the "Cavas" (deep-set gorges between limestone cliffs, in which a luxuriant growth is maintained by perennial streams and moisture). On 23rd May nests mostly had young from about six days old to when just ready to fly, but in spite of this twelve nests with fresh eggs were found, evidently second layings to replace unsuccessful first attempts.

From an examination of about fifteen clutches of eggs from each district, it seems that in Sicily the type of egg differs remarkably from that of the Guadiana River (Spain) district: those from Sicily are all plain looking, dull greenish white, freckled and spotted without much variety with sepia and umber streaks, like miniature Rufous Warbler's eggs; while those from the Guadiana, with the exception of one set (which are very boldly blotched with olive-brown), are pinkish white with bold brick-red, or brick-red and purple, blotches and spots, and are very handsome.

Out of about forty-five nests examined with eggs and young, only one has been found with five eggs in it, in eighty per cent. of cases there have been four.

In the cork woods near Gibraltar a male in full plumage was observed at close quarters as early as February 14th, and several males with one female were seen *on migration* at the Coto Doñana on 12th March (1910).

SYLVIA CANTILLANS ALBISTRIATA (Brehm).

Subalpine Warblers of this race were found and obtained in Crete, where the first arrival (a single male) was noted on 25th March and a pair on 11th April (male with large testes):

also at Athens from 13th to 23rd April, where some of the males were singing and making nuptial flights.

Probably it is a breeding-species at both places, but the occurrence of a single male (presumably of this race) on board ship 40′ west of Crete on 29th April shewed that the migration was still going on at that date. None were met with in Egypt in the autumn.

Sylvia conspicillata conspicillata Temm.

The Spectacled Warbler was not observed to the eastward of Malta and Sicily. Where found the species is quite sedentary and very local.

Malta.—Breeding plentifully. Earliest nest with four fresh eggs 23rd March; latest nest with five fresh eggs 28th April. One nest, found nearly built on 23rd March, was unaltered and rain-sodden on 1st April, but contained the unusual number of six eggs (a week incubated) on 25th April, thirty-three days after it was first found.

Sicily.—30th May, a fully fledged brood seen.

Sylvia undata undata (Bodd.).

The Dartford Warbler was not met with to the eastward of Sardinia, where, as in Spain, it was found resident and specimens were obtained breeding.

Sylvia sarda Temm.

Marmora's Warbler was found in Sardinia (only) both in May and December, evidently resident. In May none were met with until the short scrub-clothed undulations among the foot-hills, a mile or two from the coast, were reached, whereas in winter one bird was seen in a thick lentiscus bush close to the seashore. Perhaps, as in the case of the Dartford Warbler, there is a seasonal movement. In habits Marmora's Warbler resembles the Dartford Warbler, skulking and unobtrusive, except in the breeding-season, when, in spite of its small size and dark plumage, the habit of repeating its alarm-note (a single sharp sparrow-like "twip" uttered by both sexes) from the top of a bush, on the approach of the intruder, is apt to render the bird rather conspicuous.

In Sardinia in May, where both this and the Dartford Warbler were breeding alongside one another, a quarrel between a male Dartford and a female Marmora shewed how readily recognisable the latter is, if only seen in silhouette, by its much shorter and stiffer tail.

On 3rd and 5th May a number of Marmora's Warblers were seen, some paired, one carrying a caterpillar (presumably to young); and a nest with three slightly incubated eggs was found, from which the female was flushed and shot, attention having been first drawn to the locality by the excited alarm-note of the male. This nest was like that of a Sardinian Warbler, but with a deeper and rather smaller cup; it was a fairly compact structure of dry grasses, bent pieces of dry thistle, and plant "fluff," lined with finer pieces of the last-named material, the cup neat, the rim and outside rather straggling. It was placed, about fifteen inches from the ground, in a purple-flowering wild vinegar ("Canqueso," Spanish) entwined with a dead cistus plant, and was visible to anyone walking about without moving any part of the bush. The nature of the vegetation was loose, not dense, cistus—Spanish gorse and aromatic plants such as are found all over the Mediterranean, from two to three feet high only.

The eggs were of the same type as those of the average Sardinian Warbler's, but a little smaller and more ruddy umber-coloured than those of that species.

Prinia gracilis deltæ Rchw.

Met with in Egypt only, where it is an abundant resident, nesting in the tamarisks and reeds in the marshes. Eggs are laid at least as early as April, and on 25th August a nest with three slightly incubated eggs was found. There did not appear to be the least seasonal movement. The late breeding doubtless accounts for the irregularity of the moult of this species, an adult female, obtained on December 23rd, having three of the tail-feathers old, and the remainder just sprouting. Another, shot on November 4th, has both the tail and wings moulting; while other moulting individuals were observed in that month and at the end of September.

CISTICOLA CISTICOLA * (Temm.).

The typical form of the Fantail Warbler was obtained in winter in Egypt and Greece, and was found breeding in Sicily and Spain in summer, but was not seen in Crete. No evidence of any migratory movement was observed.

TURDUS PILARIS L.

The Fieldfare was only met with on two occasions, the 18th and 27th November, at Port Said, four birds altogether being seen, and those evidently on migration southwards. The stomach of one shot was practically empty, containing only a little sand and a few pieces of shell.

TURDUS PHILOMELUS PHILOMELUS Brehm. (*T. musicus* auct.)

The Song-Thrush was met with all over the Mediterranean in winter only. It seems probable that, just as in the British Islands in winter, severe weather on the Continent causes a migratory movement among the Thrushes, Larks, etc., so there occur across the Mediterranean, even in mid-winter, migratory movements of a number of species, which get frozen out during specially cold spells in the south-east of Europe and Asia Minor. As an example, on the 8th January at daybreak when the ship was in Aboukir Bay, five miles from the low-lying coast, a single Song-Thrush came from the northward, and flew several times round the ship, then mounted higher and higher till lost to sight—probably continuing its journey landwards. The local weather had been fine and settled for days past. Everywhere in the Mediterranean the Song-Thrushes were very wild, hiding in the thickest cover on the least alarm—never singing—and when flushed escaping hurriedly to the nearest cover with a stifled "tchik."

Egypt.—A fairly plentiful winter visitor. First seen 8 A.M. 30th October, a single tired bird. Winter numbers reached at the end of November.

Crete.—Plentiful winter visitor. Last noted 11th March,

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* For the reason for the omission of the third name in this case see under *Coccothraustes*, p. 124.

Malta.—A plentiful winter visitor. Nearly all gone 30th March, after apparent increase by migrants from the south earlier in the month. A dead Thrush picked up in May on Filfola, a small rocky islet three miles to the southward of Malta, also lends support to this theory of increase by migrants from Africa.

Sardinia.—An abundant winter visitor.

An evidently belated straggler was seen as late as 3rd May, but the majority of winter visitors and migrants had probably gone a month earlier.

TURDUS MERULA SYRIACUS (H. & E.).

The one specimen obtained was from near Damietta, on the 22nd of November, but it seems probable that the Blackbirds noted as scarce winter visitors at Port Said and near Damanhour (*infra*) belonged to the same race.

TURDUS MERULA (? subsp.).

Egypt.—Scarce winter visitor. First seen 8th November, Port Said. A few occurred in December in the cotton-fields near Damanhour.

Crete.—Apparently resident. A nest with four very small bright-coloured fresh eggs from which the hen bird flew, was found on 11th April.

Platea.—Apparently resident. Seen in mid-December and mid-July.

Malta.—A winter visitor only. Still present March 28th, but probably left soon afterwards.

Sicily.—Young in nest, 25th May; four eggs a week incubated, 3rd June.

Sardinia.—Seen in mid-winter and also breeds. Probably resident.

MONTICOLA SAXATILIS (L.).

All the Rock-Thrushes seen or obtained were certainly on migration and gave no indication of breeding; but the higher mountains being all away from the sea-coast were not visited, and seeing that the species breeds in Greece and Asia Minor, it seems quite likely that it may be found to do so in the Cretan mountains.

Egypt.—Only noted 28th August and 20th September. Single birds on migration.

Crete.—Only noted 28th April. Single male on migration Testes small.

Athens.—Seen 21st April. Single male on migration.

Lemnos.—7th September. Two dull-plumaged birds on migration.

Malta.—16th April. Female with small ovaries, on migration.

Sardinia.—Seen 3rd May. Single male, evidently on migration.

All three males seen in spring were single: these birds have the habit of frequently vibrating the tail from side to side, just like the Redstart.

The stomachs of those collected contained beetles and in one case grasshoppers as well.

MONTICOLA SOLITARIUS SOLITARIUS (L.). (*M. cyanus* auct.)

The Blue Rock-Thrush was met with all over the Mediterranean wherever suitable rocky localities existed, often in quite low sea-cliffs as well as inland.

No trace of any migratory movement was ever observed.

In the breeding-season the males have the habit of singing with a butterfly-like flight that characterises most Warblers of the genus *Sylvia* under similar influences.

In Malta, where the young are much in request as cage-birds, the nests seem to be more than usually well concealed, and are very difficult to find. One nest was in almost complete darkness on a ledge inside a cave with a small entrance.

ŒNANTHE ŒNANTHE * (L.).

The Common Wheatear was met with, on migration only, from east to west of the Mediterranean. The species was one of the first to start on the autumn migration, and was constantly seen at sea in August. Numbers were migrating at Mitylene on 3rd August.

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* For the reason for the omission of the third name in this case, see under *Coccothraustes*, p. 124.

Egypt.—The period of passage was rather prolonged, but there was no evidence that any of the individuals belonged to different geographical races. Already plentiful on 23rd August, the numbers steadily increased until the equinox, when the passage had attained its maximum height. This was sustained for a month, during which time the Wheatear was one of the most abundant species. Directly after the 21st October the passage subsided rapidly; from 25th October onwards belated birds of the year only were seen, and the last of the species noted was on 27th October.

Crete.—Excepting one stray dull-plumaged bird looking like a female, on 21st March, the first Wheatears, all fresh-plumaged males, arrived on 22nd March, the females following regularly five days later.

Malta.—A dull-plumaged pioneer migrant was seen on the 9th of March, but the regular passage commenced at the equinox, decreasing after mid-April and closing with the end of that month.

Sardinia.—Quite a large scattered party, mostly of adult males, was seen on 3rd May, but none were obtained.

[All the Common Wheatears obtained in Egypt, Crete, Lemnos, and Malta are of the typical form.—*H. F. W.*]

ŒNANTHE HISPANICA XANTHOMELÆNA H. & E.

Saxicola hispanica xanthomelæna Hempr. & Ehr.: Hartert, Vög. pal. Fauna, vol. i. p. 687.

The Black-eared and Black-throated Wheatears were only met with to the eastward of Malta and Sicily, those to the westward, *i. e.* in Sardinia and Spain, being presumably of the western form, although no specimens of the latter were obtained.

In Sicily there seemed to be no Wheatears breeding; at Malta there certainly were none, neither could any certain records of Black-eared or Black-throated Wheatears, even on migration, be obtained: while in the first week of May in Sardinia the few seen were all dull-plumaged birds apparently on migration, or at all events not breeding, although at this date nests with eggs are plentiful further westward. Such a natural gap in the continuity of the breeding-areas of these Wheatears appears to lend some strength to the separation of the eastern and western forms.

Wherever met with in the breeding-time, both Black-throated and Black-eared Wheatears have been occupying the same ground, but no cases of antagonism were observed. Each pair seemed to keep to its own patch, and although it is a difficult point to make sure of, owing to the similarity of the females, nothing was apparent to suggest interbreeding of the two species.

The stomachs of the birds collected contained beetles, flies, larvæ, small snails, one a large millipede, and another a large yellow and black smooth caterpillar.

Egypt.—Except that the Black-eared was comparatively scarce, both species coincided in migration, which started with September (rather later than *Œ. œnanthe* and far less numerically) and finished with the first week of October.

Crete.—The first birds arrived 24th March, adult males in full plumage (very pure black and white). These increased gradually, and the females came about 1st April. Breeding birds of both forms then paired and spread for nesting in some numbers, but many passed on northwards. A nest of the Black-throated Wheatear with two fresh eggs was found in a hole in a wild fig-tree on 28th April.

Athens.—13th–22nd April. The same remarks apply.

Mitylene, 13th August, and *Lemnos,* 20th August, a number of Black-throated and a few Black-eared Wheatears were apparently migrating.

Platea and *Marmarice.*—15th–31st July. Birds which had apparently bred were in full moult. No males seen were in summer black-and-white plumage. These Wheatears seem invariably to moult before starting their autumn migration, all the adult males being then in the roseate-buff winter plumage.

[As I agree with Dr. Hartert in regarding the Black-eared and Black-throated Wheatears as dimorphic forms of one species, I have placed Lynes's notes under one heading, and I think they strengthen the view that these two birds should be regarded as dimorphic forms of the same species. All the individuals obtained in Egypt, Greece, Crete, and Asia Minor are of the eastern form.—*H. F. W.*]

ŒNANTHE PLESHANKA CYPRIACA Homeyer.

The Cypriote race of the Pied Wheatear was met with in October near Famagusta, where it was fairly plentiful, frequenting both the plains and the scrub-clad slopes of the foot-hills.

Old birds and young of the year were both obtained, and the species had every appearance of being resident. The facts that no other species of Wheatear was present, and that the Pied Wheatear was not met with in Egypt during the previous autumn, seem to lend support to this view.

Their stomachs contained insects, seeds and insects, and a grasshopper.

[The specimens collected (in October) are all in freshly moulted plumage and are very dark coloured on the upper parts. The cream-colour of the head and nape is almost entirely concealed by the long brownish-black fringes of the feathers. The small size of this form is perhaps a better character than its dark coloration. The following are wing-measurements of males :—

Œ. p. cypriaca: 83 to 90 mm. (seventeen specimens, of which only one measured so much as 90 mm.).

Œ. p. pleshanka: 90 to 100 mm. (twenty specimens, of which only one measured so little as 90 mm.).

—*H. F. W.*]

SAXICOLA TORQUATA RUBICOLA (L.).

In Egypt and Malta the Stonechat was observed as a winter visitor only, but in Crete, Sicily, and Sardinia it occurred both in winter and summer. In Crete the bird seemed to be a resident, and also, as in Andalusia, where many of the first broods are out of the nest so early as the last week of March, an early breeder. But in Sardinia and Sicily the nests were made a month or more later, so it is possible that the individuals wintering at those places may not be the breeding-stock.

The stomachs contained flies, beetles, seeds, caterpillars, and small snails.

SAXICOLA RUBETRA RUBETRA (L.).

Egypt.—Migrant only. The passage of Whinchats commenced about 28th August, after which date the numbers increased almost daily. From 15th September to 7th October the species abounded everywhere; the numbers then suddenly dropped to merely a few stray birds, and on 20th October, the very day that the last Whinchat was noted, the first Stonechat was seen.

Between September 16th and 26th some adult males apparently in summer plumage were seen. All observed subsequently were in the plain streaked dress.

Crete.—The first migrant, a male in full summer plumage, was observed on 1st April. Numbers of both sexes were met with at Athens between April 13th and 23rd, and several of both sexes at sea forty miles west of Crete on 29th April. All these birds were evidently passing further northward.

Malta.—On 3rd May only females were observed on migration; the males had gone by, and the passage of Whinchats was nearly concluded.

[The specimens collected (♂ April 7, Crete ; ♂ April 13, Greece ; ♂ April 30, at sea ; ♀ September 16, Alexandria) vary somewhat in coloration and size, but these differences are, I consider, either seasonal or individual. In addition to the large series I have been able to compare at Tring and in my own collection, Herr Reiser has very kindly lent me five specimens from Greece.—*H. F. W.*]

PHŒNICURUS PHŒNICURUS * (L.).

The typical Redstart was met with as a migrant all over the Mediterranean.

Egypt.—The migration started about 23rd August, but it was not till six weeks later that the press came. From October 3rd to 28th Redstarts were exceedingly numerous. The passage then steadily decreased and November 8th furnished the last record. Up to 11th September the few seen were all dull-plumaged birds, probably all or nearly all young of the year. Then came a sprinkling of adult males in full winter dress, these gradually increasing until 20th October, when they seemed to form about 60 per cent. of the Redstarts resting in every tree or bush. The passage of the adult males then abruptly ceased, for all subsequently seen were dull-plumaged birds, either females or young of the year.

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* For the reason for the omission of the third name in this case see under *Coccothraustes*, p. 124

With a pair of scissors one of these adult males could be put into full summer plumage by snipping off the light buff tips of the feathers, illustrating the method of passing into next summer plumage during the winter absence.

Lemnos.—Dull-plumaged Redstarts on migration were observed between 20th August and 6th September.

Crete.—First seen (adult male) 25th March. First female seen 6th April. Redstarts still on migration 28th April.

Malta.—First noted (two separate males) 18th April. Female on 23rd April.

Sardinia.—3rd May, migrating plentifully.

PHŒNICURUS OCHRURUS GIBRALTARIENSIS (Gm.). (*Ruticilla titys* auct.)

The Black Redstart was met with as a winter visitor only. No elevations suitable to its breeding were visited.

Egypt.—First seen, 8th November. Never more than two or three together, generally singly. A winter visitor in small numbers.

Crete.—Plentiful winter visitor. All males had departed by 11th March, all females by 19th March. No migratory birds from further south were judged to have passed through.

Platea.—Seen in mid-winter, not in summer.

Malta.—Winter visitor in moderate numbers. Left in March. Pairs were frequently observed during mid-winter.

Luscinia megarhyncha megarhyncha Brehm. (*L. luscinia* auct.)

The Nightingale was met with breeding in Sicily and Spain, but only as a migrant elsewhere.

Egypt.—The migration had started by 2nd August, and was over about the equinox, but the numbers were few compared to the "Sprossers."

Crete.—First noted 29th March. Numbers quite small. No evidence of breeding up to 28th April.

Lemnos.—Noted on migration from 20th August to 6th September. One shot 22nd August, male adult.

Malta.—Plentiful migrant, first seen 29th March.

The stomachs of two obtained in Greece and Egypt contained small beetles and flies.

Luscinia luscinia (L.). (*L. philomela* auct.)

"Sprossers" were observed on migration in Egypt only. Their passage was well under way on 23rd August, when they were quite plentiful in the day-time, resting principally in the trees, but also in small bushes, drains, and indeed any sort of cover. On being flushed one of them (though quite able to fly) ran like a rat across the sand for some yards to the next bush. On one occasion only (26th August), when I was watching some, one of them uttered a few notes of song, but otherwise they always expressed their disapproval of an intrusion by croaks, and jerks of the tail.

Luscinia suecica suecica (L.).

Luscinia suecica volgæ (Kleinschm.).

In *Egypt* the Bluethroat (not met with elsewhere) was an abundant winter visitor. It arrived at Port Said in mid-October and reached winter proportions by the end of November.

Bluethroats appeared to go to roost earlier than other birds, but they were also the earliest risers, and their fussy little chirps and squeaks might be heard before it was light enough to see them even at close range. The early morning was the best time for observation, for it was only then that they would leave their haunts in the boggy undergrowth and take to the open, sometimes uttering a few sweet but disjointed strophes of song. In habits they were just like Robins, and equally quarrelsome but more shy.

Out of many specimens obtained at Port Said only two (October 28th and January 3rd) were of the "white-spotted" form, and these were the only two males of that race noted. Near Damanhour also the "red-spotted" form was equally predominant, and only one male of *L. s. volgæ* was obtained (January 13th).

The stomachs of the birds obtained were found to contain flies, larvæ, small snails, and water-insects.

DANDALUS RUBECULA RUBECULA (L.).

The Robin was met with as a winter visitor only.

Egypt.—The first individuals arrived at Port Said about 30th October, and their numbers never seemed to exceed what, about the beginning of December, became winter proportions. Considerably less plentiful than its near ally the Bluethroat, the Robin frequented much the same ground, but was also to be found in the gardens. Sometimes it was heard singing quite merrily, but not nearly so often as in England. This remark applies all over the Mediterranean to the winter Robins.

Crete.—Winter only. Plentiful and shy. All the birds seemed to have departed by 6th March.

Malta.—Winter only. A few examples were seen as late as 30th March, but these may have been migrants. On 8th April a very tired Robin came on board at sea off Cape Palos (south-east Spain).

No Robins in juvenile plumage were ever observed.

[The specimens collected, viz.: Crete, Feb. 19 and March 6, and Port Said, Nov. 15, were of the typical form.—*H. F. W.*]

PRUNELLA MODULARIS MODULARIS (L.).

Malta was the only place at which the Hedge-Sparrow was observed. A single female was shot there on January 28th, and notes attributed to the species were occasionally heard in the winter time. The Hedge-Sparrow would therefore appear to be a scarce winter visitor to Malta, for it certainly does not breed there.

TROGLODYTES TROGLODYTES* (L.).

Crete.—Plentiful. First heard to sing, 11th March. A pair feeding their young were watched to the nest in a precipitous crag on 25th April.

Sicily.—Plentiful, breeding among the rocky cliffs and boulders of the Cavas. In about twelve nests found the eggs and young without exception numbered four. Young birds flew from a nest on 26th May, while nests with fresh eggs were found on the same date and later, and as no other fledged young were seen the latter were not likely to be second broods.

[No specimens were procured in Crete, but three from Sicily did not appear to be separable from the typical form. —*H. F. W.*]

CHELIDON RUSTICA RUSTICA (L.).

Egypt.—Migrant only. Swallows were first seen on 8th September, arriving in the forenoon in small parties and flying low across the sandy strip that separates Lake Menzaleh from the Mediterranean. The species soon became plentiful at Port Said, flying all over the harbour among the ships and frequently perching on the rigging. When the last week of September came and the Swallows were still plentiful, it looked as if some of them were likely to stop for the winter, but at the end of October they diminished as quickly as their ranks had swelled, leaving only a few stragglers (the last seen on 15th November) to follow in the wake of the main body.

Crete.—First arrived 25th March, subsequently increased till plentiful on 3rd April. Still migrating 29th April, when many came on board ship at sea, 40′ west of Crete. No notes made as to its breeding.

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* For the reason for the omission of the third name in this case see under *Coccothraustes,* p. 124.

Athens.—Plentiful 13th–23rd April. No notes made as to its breeding.

Malta.—On passage only.

Sicily.—Met with breeding in the grottoes on the rivers in the Cavas; one small colony of about five pairs had small young on 31st May, and one single nest had five fresh eggs on 4th June. Some of these nests were only a few inches above the surface of the water.

CHELIDON RUSTICA SAVIGNII (Steph.).

This resident Egyptian Swallow was but seldom seen at Port Said, probably because that locality is unlike its true home, viz., the Nile Delta and its vicinity, where in mid-winter it was found plentiful, frequenting the pools in the water-lying marshes.

At Port Said none were seen until 30th September, after which single birds or parties of three or four were observed from time to time, sometimes in company with migrating *C. rustica.*

A few were also seen near Damietta at the end of November.

HIRUNDO URBICA URBICA (L.).

Egypt.—No record of a House-Martin between August and January.

Crete.—First individual seen 11th April, after which the numbers steadily increased. No note was made as to whether the species breeds or is migrant only.

Sicily.—At end of May the bird was breeding very abundantly in caves among the precipitous limestone cliffs of the Cavas district.

Spain, near Gibraltar.—On 24th February, at sunset, a small colony were flying in and out of what seemed to be their last year's nests, in the roof of a cave in a limestone cliff where a Griffon Vulture was sitting on one egg.

RIPARIA RIPARIA.

The Sand-Martin was met with as a migrant (only) from east to west of the Mediterranean.

Egypt.—On 25th August the species was abundant and continued so until the end of September, when birds became few, the last being noted on 21st October.

When we were navigating the Suez Canal numbers of holes in the banks looking like Sand-Martins' burrows were observed in August.

Crete.—First seen 27th March, plentiful 11th April. No note later.

Athens.—13th April, plentiful on migration.

Lemnos.—On migration, 23rd August–6th September.

Malta.—First seen on migration 29th March.

[No specimens were preserved.—*H. F. W.*]

RIPARIA RUPESTRIS (Scop.).

The Crag-Martin was found locally plentiful near Platea in mid-December, and in Crete it apparently winters and has a remarkably early migration.

In Crete on 11th February a single Crag-Martin flew by, evidently travelling. On 20th February the species had become plentiful about Suda village, and the last two individuals were seen there on 23rd February. This apparently completed the passage of the Crag-Martins, all, it was considered, being birds which had wintered in the mountainous interior of Crete, and not in Africa, which suggests that they do not breed in Crete, but no visit was made to the interior.

CAPRIMULGUS EUROPÆUS EUROPÆUS L.

CAPRIMULGUS EUROPÆUS MERIDIONALIS Hart.

Egypt.—The following remarks necessarily include both races, as they were not recognised apart in the field.

The Nightjar was distinguished from all other migrants by having the greatest duration of passage, and considering that except when disturbed the birds are only to be seen in the twilight, it was remarkable how much in evidence they were. The passage started at the end of August. In September Nightjars were plentiful, in October even more so; in November their numbers decreased and 23rd November is the last record. The crepuscular feeding-habit of the Nightjar rather lends itself to the suggestion that its times of flight might differ somewhat from those of the Passeres, and this may perhaps account for the long period of passage, since they seemed to arrive about the same time as the other birds, and frequently flew on board about 9 A.M., but were probably feeding when the latter were continuing their journey.

A specimen of *C. e. meridionalis* was caught alive in the town of Port Said on 10th November, while an example of the typical form was shot near Port Said on 19th September.

UPUPA EPOPS EPOPS L.

The Hoopoe was met with as a migrant from east to west of the Mediterranean, and in most places as a breeding species.

Egypt.—It was one of the earliest migrants, its passage being well under way by 23rd August and concluded by the end of September.

Crete.—The first Hoopoe was seen on 1st April. On 7th April a male was shot out of a party of five, an unusually large number to meet with, as when seen on passage the birds were generally alone or in twos. The spring call of the Hoopoe was not heard in Crete, but its breeding there was very likely overlooked.

Athens.—13th April, several were seen and looked like breeding.

Lemnos.—Between 21st August and 8th September, especially at the end of that period, many were observed on migration, and made a special "gibier" for the Eleonora Falcons, whose breeding-islet was full of fresh remains.

Malta.—Hoopoes passed on migration in March and April, but none stopped to breed.

Sicily, Sardinia, and Spain.—The species was found breeding.

Hoopoes were very frequent visitors on board ship at sea during migration-time, but seldom more than one occurred at a time.

[Only one specimen (Crete, April 7th) was preserved.—*H. F. W.*]

CORACIAS GARRULUS GARRULUS L.

In Egypt the migration of the Roller coincided almost exactly as to date with that of the Hoopoe, *i. e.* was well started by 23rd August, and concluded by the end of September. Individuals were occasionally seen coming in from the sea, descending from a height with an easy "folding" flight.

At Athens Rollers were first seen on 23rd April, being then evidently on migration. They were not noted at Crete. At Marmarice several—evidently bred thereabouts—were seen at the end of July, and at Lemnos between 21st August and 6th September others were observed apparently migrating. At Malta this species was an abundant migrant, arriving about 18th April, but did not breed in the island, though in Sicily a few nested in the Cavas, fresh eggs being found on 2nd June.

The Roller seems to prefer to migrate in company with two or three more of its kind, travelling in a widely scattered formation.

ALCEDO ISPIDA BENGALENSIS Gm.

In Egypt Kingfishers were frequently seen about the harbour and edge of Lake Menzaleh from 23rd August onwards, but their abundance from the first week of September to the end of October and subsequent scarcity in the winter seemed to shew that the majority seen were on passage. Perhaps all did not belong to this race.

An *Alcedo ispida* (no specimen obtained) was plentiful in the marshes at Platea and Sicily in winter. Near Gibraltar the bird was observed on 8th March, which looks as if it is resident, for it is known to breed there.

[The only specimen obtained (Port Said, October 31st, 1906) belongs to this race.—*H. F. W.*]

DENDROCOPUS MEDIUS MEDIUS (L.).

At Platea and Laverda, a little way south of the Gulf of Arta, this Woodpecker was plentiful, frequenting the oak-woods. One specimen was obtained.

DENDROCOPUS MEDIUS SANCTI-JOHANNIS (Blanf.).

At Smyrna a family-party was met with at the foot of the pine-clad hills on 4th October, and one specimen was secured.

IYNX TORQUILLA TORQUILLA L.

The Wryneck was met with on migration from east to west of the Mediterranean, and in Egypt apparently a few stop to winter (*vide* Mr. Nicoll's observations, 'Ibis,' July, 1908, and Mr. Loat, 'Ibis,' January, 1906).

Crete.—The Wryneck was first seen on 29th March, again on 7th April and 11th April. On each occasion single birds were met with, evidently on migration.

Lemnos.—The species was plentiful on migration between 21st August and 6th September, and was a favourite prey of the Eleonora Falcon.

Malta—The Wryneck's passage commenced during the last week of March. Nowhere was its call heard.

FALCO PEREGRINUS PUNICUS Levaill.

The Mediterranean Peregrine was plentiful at Lemnos between August 22nd and September 8th. All seen were near the sea-coast. Very small birds they looked, smaller in compass even than the Eleonora Falcon, but much more thickset. A Peregrine of some sort was observed several times at Crete.

[A female specimen, obtained at Lemnos on August 21st, is in full moult. On the under parts the old feathers are of a pale cream-colour, while the new are reddish buff, and similarly the old feathers on the upper parts are dark brown with grey bands while the new are black with grey bands.—*H. F. W.*]

FALCO ELEONORÆ Gené.

The Eleonora Falcon was found breeding plentifully at the end of August in Lemnos. This is the same place that Rear-Admiral A. M. Farquhar wrote about in the 'Ibis' (1902, p. 166), so it is thought unnecessary to give here more than a few additional notes.

The rocky islet on which the Falcons breed is 1½ acres in extent, about half its edge is precipitous, and the brittle limestone of which it is composed is honeycombed everywhere with large and small holes, providing suitable nesting-sites for Cormorants (*Phalacrocorax graculus* ?) and Gulls (*Larus cachinnans* and possibly also *L. audouini*, an example of which was seen close by), but their nests had of course been tenantless for some months.

The Falcons' nests were not confined to the precipitous parts—indeed only two out of the ten found needed a rope to get at them. Five nests were quite on the top of a detached peninsula with perpendicular sides, the eggs being placed in "pot-holes" among the limestone facets. One clutch of three eggs was placed in a Cormorant's old nest.

There seemed to be at least twelve pairs breeding in the islet, which abounded with the remains of freshly-killed birds, chiefly Wrynecks and Hoopoes, the autumn migration being in full progress and small birds abundant in consequence.

Only one of the nests contained young birds (three in number), the remainder had eggs (3, 3, 3, 3, 3, 2, 2, in number), averaging ten days of incubation. Two clutches on the flat top had been broken recently, possibly by fishermen who sometimes go there. In two of those with three eggs, one of the eggs was separated about eight inches from the others, as though it had been deliberately put aside so as not to hatch. Certainly in one case, and probably in the other, the embryo was dead.

To lay three eggs would seem to be the rule, but not to rear more than two young, for in all nests with three eggs one was addled (in one nest two). The parent bird sat very close on the nest of two young (each about two days old). The broken shells of the eggs were just thrown out of the nest and were lying two feet away. Two of them pieced together almost perfectly. In the nest were three castings, two of small birds and one of beetle-remains.

All other nests (with the eggs) were void of food except one, close to which were the remains of a Roller, the leg of a Chukar Partridge, and four castings, one of beetle-elytra, two of small mammal's fur, and one of Roller's feathers. A Chukar seems a remarkably large bird for an Eleonora Falcon to tackle, but there must have been a number of wounded birds about just then from the shooting.

It is never easy to count birds which are in constant motion, and thirteen was the most seen at one time on the islet, only one being in the dark phase of plumage, so it seems that there must have been present breeding males in the Hobby-like plumage. Furthermore, out of about twelve Eleonora Falcons seen about the main island on various occasions between these dates, only two were in the all-dark plumage, which would seem to be quite the exception.

The female specimen obtained contained the remains of an Ortolan Bunting and a Red-backed Shrike.

On 27th April this species was observed frequenting a precipitous island off the west of Crete.

Falco tinnunculus.

At Port Said the Kestrel, first noted on 23rd October, was subsequently seen off and on in the country, and was presumably a winter visitor. At Damanhour in December and January a number of Kestrels frequented the town, much as one sees Kestrels in summer in Andalusia. It seems not unlikely that these were resident Kestrels (Mr. Nicoll points out, 'Ibis,' July 1908, that there is an Egyptian race), and that those observed at Port Said were migrants.

Crete.—The species was plentiful and apparently resident, breeding in the cliffs and old fortresses. Judging by the actions of the birds they seemed to be preparing to nest on 25th March.

Cyprus.—On 10th October Kestrels were plentiful, some about the plains catching grasshoppers, others about the old fortress, looking like residents, as they frequented holes at the mouths of which could be seen the "whitewash" of ages.

Lemnos.—At the end of August the species was abundant, and judging by the date must have bred there. It was also seen at Mitylene on 13th August.

Navarino.—Kestrels were frequenting, in company with Alpine Swifts, a rocky islet about 20th July.

Malta.—A few seem to be resident, as the species was observed during winter and summer in the same haunts. Others pass through on migration.

Sicily.—Breeding plentifully in the Cavas. A nest of four half incubated eggs was found on 1st June.

N.B —The Lesser Kestrel (*Falco naumanni*) was not identified to the eastward of Malta.

FALCO VESPERTINUS L.

In Egypt the only specimen identified for certain (obtained) was a female resting in a tree at Port Said on 28th October.

In Malta, on 23rd April, at sunset a number of Falcons coming from the southward stopped to form a gathering, wheeling around about 600 feet above the ground. When the last of the party had come up, the whole concourse, numbering about 200, descended and passing close overhead were seen to be nearly all *Falco vespertinus* (many fine dark males) with a few Kestrels. The Red-footed Falcons were readily distinguishable from the Kestrels by being more thickset, like miniature Peregrines, short and broad. It was not possible in the dusk to follow these birds far, but their actions gave the impression that they were breaking their journey, and intended to spend the night at Malta.

ACCIPITER NISUS (L.).

In Egypt Sparrow-Hawks appeared at the end of October, and for a month were often seen near Port Said, sometimes several together. These were evidently only passing by, but one example seen near Damanhour in mid-December shewed that some Sparrow-Hawks remained during the winter.

In Crete the species was observed on 3rd March, but not identified for certain later.

At Platea Sparrow-Hawks were very plentiful in winter, but were not observed during a short visit in July. The following incident took place near Platea. On 17th December, shortly before sunrise, a small hawk rose from some thick bushes and gave an easy shot against the eastern sky. It dropped apparently dead. On reaching the spot two Sparrow-Hawks were found, a female flapping hard and trying to rise with her claws fixed into the breast of the male, which was lying on his back motionless and almost dead, obviously the bird that had been shot.

The female allowed herself to be taken by hand across the shoulders, and was detached from the now dead male without offering any resistance. When I was satisfied by an inspection that she was uninjured, she was thrown into the air and flew strongly away. It was apparently a case of the hen bird endeavouring to rescue her mate; had it been merely one of cannibalism, she would surely not have allowed herself to be caught.

ARDETTA MINUTA (L.).

At Port Said on 30th October a Little Bittern flew on board the ship and was captured. The same day another was met with in a marshy place. The species did not seem to winter there.

In Sicily on 23rd May Little Bitterns were very plentiful in the fringe of sedges round the edge of the Lago di Lentini. They were continually flushed, and looked as if they had not long arrived. They breed very late, making nests like small Moorhen's nests among the dead stuff at the bases of the big "carizos" of the reed-forests. On 6th June two nests contained two and three fresh eggs respectively.

HYDROBATES PELAGICA L.

It seems remarkable that the Storm-Petrel was never observed in the Mediterranean to the eastward of Malta. Between Gibraltar and Malta, but not from Malta to the eastward, in August, numbers of these birds would follow the ship's wake, flying to and fro and dipping their beaks into the water for food now and then. In the Red Sea and Gulf of Aden many Storm-Petrels appeared again. The species was found nesting plentifully on Filfola Island, three miles to the southward of Malta. On 6th May (1906) one pair, and on 14th May (1907) many pairs, were sitting together in crannies which presumably would shortly have contained the egg. Eggs seem to be laid mostly about the last week in May, and then only one bird is found sitting. They are the latest of the three Tubinares that breed at Filfola Island.

[The stomach of one specimen is noted as containing thick orange-coloured oily matter; that of another a small fish's eye and what appeared to be green seaweed.—*H. F. W.*]

PUFFINUS PUFFINUS YELKOUAN (Acerbi).

From Sardinia eastward and especially at Crete the Levantine Shearwater was met with abundantly, never far from rocky and precipitous coasts, and apparently all the year round in the vicinity of its breeding-haunts. On Pondiko Nisi, an island precipitous on its western face, a Levantine Shearwater was found sitting on a fresh egg at 500 feet above sea-level on 27th April.

At Filfola Island (Malta) on 6th May, 1906, three small young, and on 14th May a few backward chicks about half grown, were the only tenants of the numerous breeding-crannies, which shewed every evidence of having contained young earlier that year.

The fact of not finding at least *some* chicks nearly ready to fly might be accounted for by their having left their nests before being able to fly, or they may have been taken for food by the Maltese fishermen, who constantly visit the island, but the former suggestion is not supported by any direct evidence, and could hardly apply in the case of the Pondiko Nisi nest on a precipitous ledge 500 feet above the water.

This is the earliest of the three Tubinares to breed at Filfola Island.

PUFFINUS KUHLI KUHLI (Boie).

The Mediterranean Shearwater was met with all over the Mediterranean, often in company with the last species.

At Filfola Island on 6th May (1906) and again on 14th May (1907) some *pairs* were found squatting together in nesting-holes, but no eggs had been laid. Laying seems to commence about the third week in May, a little earlier than that of the Storm-Petrel.

Both these species of Shearwater are extremely inert when taken from their breeding holes, not making the slightest effort to escape, though they bite badly and gloves are essential, as their beaks are powerful. A sitting Mediterranean Shearwater taken to the top of the cliff, about 60 feet high, and dropped over its edge, seemed to spread out its wings only just in time to save itself from striking the boulders below.

PODICEPS NIGRICOLLIS Brehm.

A few Black-necked Grebes were first noticed (but may have been there before) on Lake Menzaleh on 22nd November, while on 7th December they were abundant. As none were seen on a previous visit on September 8th the species was considered to be merely a winter visitor.

COLUMBA LIVIA Gm.

Met with from Crete to Gibraltar; apparently a resident everywhere.

MACHETES PUGNAX (L.).

On 19th March in Crete, when the spring-migration had just commenced, a compact flock of about twenty Ruffs swept along the edge of the sea-shore after sunset.

TRINGA MINUTA Leisl.

One was obtained in Crete on March 27th.

TOTANUS OCROPHUS (L.).

In Egypt on 26th August numbers of Green Sandpipers, in rather scattered parties up to forty strong, were observed from the ship when going through the Canal from north to south. These birds, rising from the muddy banks at the edge of the Canal, would keep just ahead of the ship and from time to time fly across her bows, each individual uttering a single or double musical pipe, while the general result was a twittering song rather like that of a Swallow singing. Elsewhere, on migration, the species was only met with singly or quite a few at a time.

In Crete on 19th March two specimens were shot from a party of four migrants feeding in a ditch.

Gallinago gallinula (L.).

Gallinago gallinago (L.).

The Common and Jack Snipe are abundant during winter in suitable places all over the Mediterranean. At Port Said both species were first observed on 13th November. They were then on passage, as there is no ground sufficiently suitable to be permanently occupied by Snipe within a few miles of Port Said.

Near Damanhour in December and January the Jack and Full Snipe were abundant, and in about equal proportions. The average weight of a number was poor; Full Snipe under 3½ ounces, largest 3¾ ounces, smallest 2¾ ounces; Jack Snipe 1¾ ounces, largest 2, smallest 1½ ounces.

In Crete in spring a small influx of Full Snipe due to migration was observed from the equinox until mid-April.

Scolopax rusticola L.

The Woodcock, when frozen out of its winter quarters in the north occasionally, as is known, crosses the eastern Mediterranean in some numbers, but it seems that such migrations are the outcome of exceptional years, and that usually the numbers are few.

Egypt.—A Woodcock was shot when out Snipe-shooting in January, about 25 miles from Alexandria.

Crete.—It is known that small bags of Woodcocks may be obtained in suitable localities.

Malta.—In some years severe weather to the northward brings a sudden migration of Woodcocks through the Malta islands, birds being found in all sorts of odd places in the towns.

Greece and Albania.—In suitable cover near the sea-coast, very large bags of Woodcocks, depending on the severity of the weather inland, are obtained. January is the best month.

Rostratula capensis (L.).

In Egypt the Painted Snipe, which is resident and breeds, was found here and there. A family of five birds was flushed on one occasion. They were followed up, as with their Rail-like flight they only flew a very short distance, and the whole party shot in about ten minutes.

Crex crex (L.).

The Corn-Crake was only observed in Egypt, where in its modes of migration, passage-dates, time of arrival, &c., it almost exactly resembled the Quail; but the number of Corn-Crakes was perhaps only one twentieth of that of the Quails, and more seemed to stay for the winter.

In appearance, when coming to land after its over-sea passage, the Corn-Crake looks just like a rather dark-coloured big Quail with a long thick neck, the legs not being visible, and the speed being apparently the same.

Like the Quail, Corn-Crakes on migration frequently alight in very odd places, about buildings and on board ship, and one was seen perched at the top of a tall Aleppo pine-tree.

About sunset the Corn-Crakes seemed to get lively and were to be seen running about in the open, as if preparatory to a meal and continuation of the migration-flight.

Porzana porzana (L.).

The Spotted Crake was first observed in Egypt on 20th September: throughout October, November, and December examples were flushed now and again, shewing it to be a winter visitor.

At the end of March the Malta market had numbers of Spotted Crakes, which probably had been procured in the island.

Rallus aquaticus L.

In Egypt the Water-Rail was found to be a winter visitor in moderate numbers, arriving about 20th September. After this date, although never plentiful, they were frequently flushed, chiefly at sunrise or sunset, but their presence was more often revealed by their extraordinary squeaks and grunts issuing from the marshy undergrowth.

On two occasions Water-Rails were almost certainly observed arriving at Port Said in the early morning; if this was correct, then in mode of flight, speed, and general appearance they much resemble the Corn-Crake. On 8th November, just after sunset, a Water-Rail flew into the officers' smoking-room, through the open scuttle.

In Crete a Water-Rail was flushed from a marsh on 4th February, but was not observed later.

In Sicily at the Pantana di Lentini, the species was found plentiful both in winter and summer. On 8th June two nests containing three and nine fresh eggs respectively were found, a curiously late date if the birds are resident, unless two broods are reared in the season.

COTURNIX COTURNIX (L.).

The Quail was found as a migrant from east to west of the Mediterranean, and was especially abundant from Malta eastwards. In many places a few were found in mid-winter, and also breeding in summer, probably the same individuals.

In Egypt the species was very abundant on migration and a few were also found in mid-winter. Quails were already "in" on 23rd August, rather earlier than most years, but did not appear in full force until September. The passage was at its maximum height during the first fortnight of September, and birds were still plentiful up to the end of that month, but it was not until after September that the passage positively ceased. They always seemed to arrive singly, and made the land flying low at a speed which I timed carefully to be about fifty miles an hour, but they were never seen like this when the ship was more than fifteen miles to the north of the coast, shewing presumably that the birds only come down to the surface of the water when near the land. The Quail-catching industry (a very flourishing one) has often been described, it is therefore unnecessary to say more than that the three principal methods in autumn are: first and principally, the flight-net; secondly, the snares; thirdly, the casting-net; and thousands of live Quails thus caught are shipped away to Europe in wicker cages of six to ten stories, literally packed till the birds can hardly turn round. Quail frequently came on board ship and allowed themselves to be picked up, or struck the rigging in their flight when coming in; it may be for the same reason that driven Partridges often strike telegraph-wires, or perhaps these are unusually exhausted birds.

In Crete a male (with a female) with large testes was shot on 3rd March, evidently a wintering pair. On 7th April a Quail was calling in young corn. A few pairs evidently breed, but the species was not plentiful at any period.

In Malta the autumn passage commenced about 5th September. A few Quail breed in the Maltese islands.

CACCABIS CHUKAR.

The Chukar Partridge was met with in the Grecian Archipelago and Asia Minor.

Crete.—Comparatively few were seen, and no specimens were obtained, but the cage-birds, sure to have been locally procured, were "Chukar."

Marmarice.—The species was fairly plentiful.

Lemnos and Mitylene.—The Chukar was abundant and gave capital sport (20th August–8th September). The weather is of course hot at this season, but otherwise very pleasant, and the more a sportsman walks and knows the birds' habits, the bigger will be his bag. For about an hour and a half at sunrise and sunset, the birds are generally to be found feeding in the stubbles and thistle-grown lands on the limestone-soils. In the morning when they leave the feeding grounds, which mostly lie on the slopes and towards the tops of the undulating hills, they go down, flying or running, into the gullies, where they lie hidden until evening feeding-time among the thick boulders and scrub. They seem to prefer to roost among collections of boulders and rocks at or near the crest of the scrub-clad hills, repairing thither when almost dark.

If they see anyone coming in time the birds nearly always run away, and it seems almost the invariable rule that when disturbed they run up hill, and when flushed fly *down*, so that the sportsman should always work right up the hillside to its crest. Here the birds will lie, generally choosing one of those groups of boulders already mentioned, and, especially if they have been flushed previously, may often be put up one or two at a time at very short range, but it is necessary to shoot quickly, as they are extremely clever at putting a boulder between themselves and the gun. When much pressed near the sea-coast, the birds will often take refuge among rocks and stones at the very water's edge.

The food at this time consists of the seeds of thistle-like and other dry matured plants that grow on the fallows and stubbles, gleanings of corn, big black ants, green trefoil leaves, grubbed up bulbs and roots, and other seeds. They seem much troubled with ticks about the head. Five big and a number of little ticks were found in one ear-cavity.

The natives had a big shoot just before the Fleet arrived at Lemnos, many guns taking part, and they were said to have shot about three hundred birds, most, if not all, running. There are plenty of birds, and a small party of guns may easily average ten or more birds per head in a day's shooting, if they know how and where to go.

VIII.—*Notices of recent Ornithological Publications.*

1. '*The Auk.*'

[The Auk. A Quarterly Journal of Ornithology. Vol. xxviii. Nos. 3, 4 (July, October, 1911).]

In both of these numbers are to be found articles on the Passenger Pigeon, supplementary to that of October, 1910 (p. 428). "Other early records" of the bird are given by Mr. A. H. Wright for Canada, New England, New York, Pennsylvania, New Jersey, Delaware, Virginia, and Maryland, as well as the Gulf States, those east of the Mississippi, and those west of the same river. These two papers are not only of great interest to all Ornithologists, but must be as nearly as possible exhaustive with regard to the localities treated. Mr. W. Craig writes on the expression of Emotion in Pigeons, one contribution referring to the Passenger Pigeon, the other to the Mourning Dove, and draws attention to an article on the Collared Turtle Dove in another periodical. Mr. H. E. Ewing discusses the difference between the Chicken Mite and the Bird Mite (two cuts), and has made the discovery that the former is disseminated by the English Sparrow in America. Mr. A. H. Thayer had demanded an investigation of his tests of the "effacive power of patterns," so Dr. J. A. Allen takes up the cudgels in a review of Dr. Roosevelt's "Revealing and Concealing Coloration in Birds and Mammals," and, while giving Mr. Thayer full credit for the discovery of an overlooked principle in optics, comments on the fact that his tests are carried out with artificial backgrounds and with an absence of the motion that would be present in the living creature.

As regards individual species of birds, Mr. S. M. Gronberger translates for 'The Auk' a description by a Stockholm medical student (A. R. Martin, 1759) of a Petrel supposed to have been a Fulmar, this being the earliest description extant. Mr. J. Grinnell traces, by means of a map and an explanation thereof, the distribution of the Western Mocking-bird in California; Mr. J. C. Phillips writes on unusual flights of Canada Geese in Massachusetts in 1910; Mr. A. Saunders on the nesting of the Cedar Waxwing; Messrs. Taverner and Swales on the Migration of the Saw-whet Owl; Dr. C. W. Townsend on the Courtship and Migration of the Red-breasted Merganser; Mr. G. Nelson on the Brown Pelican in Florida, which he has observed to breed for twelve consecutive months (four pls.); while in the "General Notes" Mr. J. L. Peters corrects some statements made about Brewster's Warbler.

A summary by Mr. G. Eifrig on Bird Protection abroad, and local papers by Mr. O. Widmann on his observations at Estes Park, Colorado, by Mr. A. B. Howell on Cobb's Island, Virginia, and by Messrs. Cobb and Brooks on Eastern Alberta, complete the two numbers.

2. *Berlepsch on the Birds of the Aru Islands.*

[Die Vögel der Aru-Inseln, mit besonderer Berücksichtigung der Sammlungen des Herrn Dr. H. Merton, zusammengestellt von Hans Graf v. Berlepsch. Abh. Senck. Nat. Gesell. xxxiv. Frankfort-a-M.].

The Aru Islands, although frequently visited by naturalists and well-known to Wallace, who has devoted several chapters to them in his 'Malay Archipelago,' have never, so far as we know, had the honour of a special treatise on their Birds. An excellent ornithologist has now undertaken this task, basing it on the Collection lately made there by Dr. Hugo Merton and entrusted to Graf v. Berlepsch by the Senckenbergian Museum at Frankfort-a.-M.

The known Ornis of the Aru group contains about 188 species. Dr. Merton's Collection embraces specimens of fifty-eight. Of these, three (*Halcyon macleayi insularis*, *Sterna longipennis*, and *Sterna anæstheta*) are additions to the Avifauna. After several pages of well-written general remarks, in which ten species of birds are designated as being, so far as we yet know, peculiar to the Aru Islands, our author gives a systematic list of all the species of the Island-group, with references to former authorities and other observations. That the Aru Islands have a predominantly Papuan Avifauna is manifest by their being the sole possessor of the Great Bird-of-Paradise (*Paradisea apoda*), besides many other significant Papuan forms. There is, however, apparently a feeble Australian element.

3. *Brabourne and Chubb on the Nomenclature of the Rheas.*

[The Nomenclature of the Rheas of South America. By Lord Brabourne, F.Z.S., and C. Chubb, F.Z.S., M.B.O.U., Zoological Department, British Museum. Ann. & Mag. N. H. ser. 8, vol. viii. p. 73.]

The authors wish to rename the common *Rhea americana* and to call it *Rhea rothschildi*, because they say that Linnæus' *Struthio americanus* was based on Marcgrave's "*Nhanduguacu*," which came from the district occupied by

Rhea macrorhyncha. To this we reply that the two above-named forms are so much alike that it is impossible to decide certainly to which of them Marcgrave refers. We, therefore, think that it would be a great mistake to change the well-known name *Rhea americana,* which has hitherto been universally adopted for the ordinary species.

As regards the scientific name of Darwin's Rhea, d'Orbigny's note (Voy. l'Amér. Mérid. ii. p. 67) states: "Cette espèce a les acrotarses couverts de petites plumes; c'est pourquoi je lui ai imposé le nom de *Rhea pennata.*" This shews that he well understood the special character which distinguishes it from *R. americana,* and we allow that his name has precedence over that of Gould.

4. *Bureau on the Determination of the Age of Partridges.*

[L'Âge des Perdrix: I. La Perdrix Grise. Par le Dr. Louis Bureau. Nantes, 1911, pp. 1-129.]

In this paper Dr. Bureau shews us how to ascertain the age of a Common Partridge from a consideration of the structure of the wing, the moult, the gradual loss of the primaries, secondaries, and so forth. Characters are further given to distinguish the male from the female; the various races are touched upon and the weight is also discussed. A great number of statistics is given to elucidate the subject. The regularity of the moult is stated to be very remarkable. Chronometrical tables can consequently be made out, which seem to distinguish the young at various ages from the adult in a more thorough way than has ever been hitherto attempted. This careful and painstaking work is illustrated by thirty-five figures.

5. '*The Emu.*'

[The Emu. A Quarterly Magazine to popularize the Study and Protection of Native Birds. Vol. xi. pts. 1, 2 (July, October, 1911).]

The first, and one of the most important, of the papers in these two parts of our contemporary is on the Bush-birds of New Zealand, by Mr. J. C. McLean: it is continued in October and gives a very clear idea of the extent to which the rarer species have been extirpated, while telling us that they are not so near to extinction as has been imagined. Full details are given of *Carpophaga novæ-zealandiæ, Harpa novæ-zealandiæ, Ninox novæ-zealandiæ, Cyanorhamphus auriceps, Nestor meridionalis, Chalcococcyx lucidus, Miro australis, Petræca toitoi,* and *Pseudogerygone flaviventris.* Seven plates of scenery, nests, and eggs are added. The author's observations were made in the winters of 1906–7, on Mt. Maunga-Haumia in the North Island. A second paper, by Mr. Basset Hull, is on the avifauna of the New South Wales Islands (*cf.* 'Emu,' vol. x. p. 253). On Broughton Island the first specimen of what appeared to be *Puffinus griseus* taken on Australian soil was found in a burrow, and nestlings of *P. sphenurus* were also obtained. Nestlings of *Œstrelata leucoptera* were procured on Cabbage-Tree Island; while both the latter species are described in an accompanying article, as well as a new species (*Puffinus intermedius*), near *P. griseus,* taken in 1910 on Cabbage-Tree Island (pl.). It is not quite clear whether the supposed *P. griseus* proved to be *P. intermedius,* but apparently this was not the case. On p. 47 attention is, moreover, drawn to another new Petrel (*Œstrelata montana*) from Lord Howe Island, which was described in Proc. Linn. Soc. N.S.W. vol. xxxv. pt. 4, as also the eggs.

Two other important papers are included in the present parts. One is by Mr. H. G. Barnard, on birds from Cape York, and tells us, among many other items of interest, of eggs of *Rallina tricolor,* which are said to be white*, of those of *Halcyon barnardi, Cracticus mentalis, Xanthotis filigera, Craspedophora alberti,* and *Phonygama gouldi*; that the last-named bird builds near *Cracticus quoyi* for safety's sake, and that *Astur novæ-hollandiæ* must be considered identical with *A. clarus,* which interbreeds with it. The bower, nest, and eggs of *Chlamydodera orientalis* are also described. The second paper is by Dr. J. B. Cleland, and discourses of the contents of the stomachs and crops of a large number of Australian birds, including notes on several from Lord Howe Island, by Dr. T. H. Johnston.

"Australian Birds in Siberia" is the title of a paper by

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* *Cf.* remarks, p. 198 (*infra*).

Mr. S. A. Buturlin; Mr. G. M. Mathews writes on *Falcunculus frontatus whitei* and its nearest allies (col. pl.); while Mr. F. E. Wilson, Mr. A. W. Milligan, and Mr. E. Ashby each describe a new species, namely, *Myzantha melanotis* from N.W. Victoria, *Ptilotis insularis* from Rottnest Island, W. Australia, and *Rhipidura mayi* from Anson Bay, Northern Territory. Finally, Capt. S. A. White gives us some notes from Cape York; Mr. J. W. Mellor discusses the introduction of the Mallee Fowl into Kangaroo Island (two papers); and two or three minor articles complete the tale.

6. *Flower's Report on the Giza Gardens.*

[Zoological Gardens, Giza, near Cairo. Report for the Year 1910. (Twelfth Annual Report.) By the Director. Cairo, 1911.]

The Zoological Gardens at Giza, well known to all those who resort to Egypt, are in their usual thriving condition. The number of visitors in 1910 was fully up to the average, and many good additions had been made to the stock of animals. The collection of Egyptian birds under Mr. Nicoll's charge had been increased by his excursion to the Wadi Natron in Lower Egypt, where 136 specimens had been obtained, and by the Director's visit to the Blue Nile, whence 140 had been brought, along with a valuable series of living animals.

The Egyptian Collection, which at the end of 1910 contained 1734 skins, is described as follows:—

"This Collection, on account of the authentic data accompanying every specimen, and the care bestowed upon it by Mr. Nicoll (who has personally collected and prepared the large majority of the specimens), is now very valuable. The importance of the help given by various species of birds to an agricultural country like Egypt cannot be over-estimated, but curiously very little accurate knowledge of the avifauna has been obtained so far. A Collection, like the one Mr. Nicoll is now forming, is a necessity both to the Zoologist and the Agriculturist to ascertain what species of birds occur in Egypt, their habits, and migrations."

7. *Griffith's Catalogue of the Booth Collection at Brighton.*

[Catalogue of Cases of Birds in the Dyke Road Museum, Brighton, giving a few descriptive notes and the localities in which the specimens were found, by E. T. Booth. With further notes by A. F. Griffith. Fourth Edition. Brighton, 1911.]

In 1907 (see 'Ibis,' 1907, p. 639) we gave a notice of the third edition of this useful manual; we have now the pleasure of recording the issue of a fourth edition, of which Mr. Griffith has kindly sent us a copy. Many excellent notes are contained in it, both about each species in general and about the particular specimens of it exhibited in the Booth Collection, so that it is fast becoming almost a Manual of British Birds.

The original Collection made by the late Mr. Booth contained examples of 227 species, to which 85 have been added since his bequest was received. Among the specimens recently acquired is a Sooty Tern (*Sterna fuliginosa*) caught, exhausted, on the rocks near Brighton on the 24th of April, 1911, and a Gull-billed Tern (*S. anglica*), also a rare species. We need not repeat the history of this excellent Collection, but can assure all ornithologists that it is well worth a visit.

8. *Guide to the Animals of the Bible.*

[Guide to the Exhibition of the Animals, Plants, and Minerals mentioned in the Bible. British Museum (Natural History) Special Guide. No. 5. London, 1911. 74 pp.]

An Exhibition of the Animals, Plants, and Minerals mentioned in the Bible was prepared, by order of the Trustees of the British Museum, for the Tercentenary of the Authorized Version, which has lately been celebrated. The Collection, which has now been removed to one of the bays in the Great Hall of the Natural History Museum at South Kensington, though by no means complete, is worthy of notice. The Zoological objects have been selected, labelled, and arranged by Mr. R. Lydekker, F.R.S., under the general supervision of the Keeper of Zoology. The book now before us is a "Guide" to them. Rather over twenty species of birds are mentioned in the List of

Animals, and the principal facts known about them are correctly, but rather insufficiently, stated.

The chief authority on the subject is, of course, the late Canon Tristram's excellent 'Fauna and Flora of Palestine,' published in 1884, and the same author's 'Natural History of the Bible' (1864).

9. *Gunning and Roberts on new Birds in the Transvaal Museum.*

['New Records and Descriptions of New Species of Birds in the Transvaal Museum Collection. By Dr. J. W. B. Gunning and Austin Roberts. Annals Transvaal Mus. iii. No. 2, p. 109.]

The following species and subspecies are described in this paper:—*Vinago orientalis* (Beira); *Pternistes castaneiventer* (E. Africa. Fort Beaufort); *Falco horsbrughi* (Transvaal); three new subspecies of *Piezorhina capenis,* proposed to be called *P. c. intermedia, P. c. grisea,* and *P. c. pusilla; Glaucidium capense rufum* (E. Africa); *Dendromus albifacies* (E. Africa); *Irrisor erythrorhynchus brevirostris* (E. Afr.); *Alseonax cærulescens pondoensis* (Pondoland); *Certhilauda daviesi* (East Griqualand); *Phyllastrephus capensis intermedius* (S.E. Africa); *Zosterops vaalensis* (Potchefstroom); *Apalis rhodesiæ* (Matabeleland); *A. spelonkensis* (N. Transvaal); *A. venustus* (Pondoland); *A. darglensis* (Natal); *A. flaviventris* (Pretoria); *Camaroptera brachyura bororensis* (E. Afr.); *C. griseo-viridis noomei* (Transvaal); *Monticola pretoriæ* and *Cisticola pusilla* (E. Afr.).

Among the "New Records" we find the name of *Sylvia nisoria,* of which a specimen was obtained near Venterskroon, Transvaal, in November 1909, and another near Bulawayo, Rhodesia, in January 1911. The identity of the former specimen has been confirmed by Dr. Reichenow.

10. *Hartert on the Birds of the South-west Islands.*

[(1) On the Birds of Sermatta, one of the South-west Islands. By E. Hartert, Ph.Dr. Nov. Zool. xviii. p. 161.

(2) Additions to the Birds of Babber. By E. Hartert, Ph.Dr. *Ibid.* p. 169.

(3) Additions to the Avifauna of Luang. By E. Hartert, Ph.Dr. *Ibid.* p. 179.]

These memoirs are all supplementary to Dr. Hartert's former papers on the Birds of the South-west Islands, in the Moluccas (Nov. Zool. 1904, p. 174, and 1906, p. 288). Sermatta had not been previously visited, but has now produced examples of 45 species, none of which are peculiar. Six additions are made to the Avifauna of Babber, and eight to that of Luang, but none of them are peculiar.

The small island of Marsela alone remains unexplored.

11. *Hartert on* Henicophaps foersteri.

[On *Henicophaps foersteri.* By Dr. E. Hartert. Nov. Zool. xviii. p. 168, plate.]

This fine Pigeon, which was first described in 1906, from a specimen obtained in New Britain, is now figured by Dr. Hartert (plate i.).

12. *Koenig on the Birds of Spitsbergen.*

[Avifauna Spitzbergensis: Forschungsreisen nach der Bären-Insel und dem Spitzbergen-Archipel, mit ihren faunistischen und floristischen Ergebnissen. Herausgegeben und verfasst von Alexander Koenig. Bonn, 1911. Pp. i-x, 1-294, 74 text-figs., 20 Heliogravures, 34 col. pls., and map.]

This important and finely illustrated work is a welcome contribution to Ornithology, and comes at a time when it is possible to sum up, with a fair chance of completeness, the information to be gathered from the writings of many former explorers. The author, moreover, has visited the Spitsbergen group on no less than three occasions, and has thoroughly explored a large extent of territory in company with several friends, of whom Baron Geyr von Schweppenburg and Dr. Otto le Roi may be more particularly mentioned.

The ornithological part of the book consists of two main portions, the first being devoted to a general account of the journeys, including Norway, with a full description of the country and its fauna by the author himself; and the second containing articles on the different species by Dr. le Roi, in addition to an Ornithological Bibliography of

Bear Island and Spitsbergen, from the year 1598 onwards, with lists of their Birds.

It is impossible here to follow in detail the journeys of 1905, 1907, and 1908, which are traced on a map that has been brought up to date with the greatest care, but it should be mentioned that the course followed from Bear Island, in 1907, by the explorers took them far up the more important fjords and into the bays of the west coast of Spitsbergen, and thence along most of its northern shore; while in 1908 they visited the same and other parts of the west coast, the South Cape, King Ludwig Island, and Menko Island. On each occasion pack-ice prevented further progress to the east.

A few of the most important discoveries may be now mentioned. Some form of the Gyr-Falcon; the remains of a Starling (Bear Island—most northern record), of a Blackbird and a Redwing (Bear Island); the Ringed Plover (doubtless breeding); the remains of a Woodcock (Spitsbergen); Sabine's Gull (nest and eggs—King's Bay); and a young Herring Gull (Bear Island). Important notes are furnished on four species of Skua, the Pink-footed, Brent, and Bernicle Geese, the Wigeon and other Ducks, besides full accounts of all the well-known species inhabiting the group of islands, especially the rarer forms.

The photographic reproductions of scenery are charming, and the coloured plates of birds and eggs excellent. Of the larger birds the heads only are drawn. Many English and foreign artists have contributed to the plates.

The last eighteen pages are devoted to other classes of the Fauna, and to the Flora, but these are outside of our special province.

13. *Lowe on Desert Islands.*

[A Naturalist on Desert Islands. By Percy R. Lowe, B.A., M.B.O.U. With 32 plates and 3 maps. Witherby & Co., 1911.]

There are not many desert islands still left in the world, we suppose, but Dr. Lowe has found three, and gives us an interesting account of them in the present volume. For six consecutive winters it was our friend's good fortune to accompany Sir Frederick Johnston and his wife, Lady Wilton, during their delightful yachting cruises in the Caribbean Sea and the Gulf of Mexico. His host and hostess most kindly gave Dr. Lowe every opportunity of visiting little known islands and spots in order to gratify his taste for Natural History, and the readers of this Journal have had several opportunities of judging how well he has profited by their kindness. After making his scientific discoveries public Dr. Lowe has thought that a more popular account of some of his reseaches might be appreciated, and has composed the present volume.

The three "Desert Islands," which are the special subjects of the work, are Swan Island in the middle of the Gulf of Mexico, Blanquilla on the Venezuelan coast, and the group of the Hermanos, 90 miles due north of Venezuela. As will be noted, his chapters are by no means confined to Bird-life, but range over the whole field of Natural History, and touch upon many other subjects of general interest. We strongly recommend the perusal of 'A Naturalist's Visit to Desert Islands' to all our readers.

14. *Mathews on the Birds of Australia.*

[The Birds of Australia. By Gregory M. Mathews. Vol. i. pt. 5. London: Witherby & Co. October, 1911.]

Except for the Introduction and Index, which will together form Part 6, Mr. Mathews has now completed the first volume of his work, and we congratulate him on the successful issue of this instalment of his arduous task, and on the continued excellence of the text and plates. This is particularly noticeable in the Part before us, where he has been able to add considerably, by the help of several good observers in Australia, to the life-histories of the species already published.

Perhaps, however, it is on critical points of nomenclature and synonymy that the author would at this juncture be most anxious to insist; and with these we may express a general agreement, so far as we can judge from his pages, though without the actual specimens it is impossible to decide how far any single species should be subdivided into races.

To descend, however, to details. On the first page we have a reference to Mr. H. G. Barnard's statement in the 'Emu' (*suprà*) that the eggs of *Rallina tricolor* are white, a fact entirely opposed to previous experience: we should be inclined to agree with Mr. Mathews, and to ask whether a single clutch might not be white, while normal eggs were spotted. The next point of importance is that the author places all the Australian forms of *Porphyrio* under one species, as *P. melanotus melanotus*, *P. m. bellus*, *P. m. fletcheræ*, and *P. m. neomelanotus*, the two latter being the Tasmanian and N.W. Australian races, which are both described as new. In this case and in that of the Grebes the keys to the species do not tally with the text, but Mr. Mathews will probably mention this in his "Corrigenda." Moreover, he suggests eight other subspecies, which are not Australian, but here he tells us that the specimens examined were not decisive, and we think that the suggestions are somewhat premature.

Undoubtedly the most important item in the whole of the Part is the determination of a "White Gallinule" assigned to Lord Howe and Norfolk Islands, and referred by von Pelzeln to the genus *Notornis*. By means of plates and other arguments we are shown that two distinct birds have been confounded under this appellation—one the *Porphyrio stanleyi* of Rowley, which proves to be merely an albino of *P. melanotus*, and the other the species mentioned by White in his 'Journal of a Voyage to New South Wales.' The latter was secured for the Leverian Museum, and thence passed on to that of Vienna: it is also a *Porphyrio* and should stand as *P. albus* of White, from Lord Howe Island.

We must also note in passing that Mr. Mathews puts forward the new generic title of *Mantellornis* for *Notornis hochstetteri* of New Zealand, and that, in retracting his opinion of the non-Australian character of the Lord Howe and Norfolk Island avifauna, he accepts Mr. Basset Hull's proposal of a Phillipian Subregion for the two combined. We hope, however, that a different name will be adopted to prevent confusion with the Philippine Islands.

All the Grebes are included in one genus; but, as the author calls the Order *Podicipediformes* and the Family *Podicipedidæ*, we are sorry that he does not also call the genus *Podicipes*. *Aptenodytes patagonica* is subdivided into three races, *A. p. longirostris* of Scopoli (Kerguelen Island and the Crozets), *A. p. halli*, subsp. n. (Macquarie Island), and the typical form. The genus *Penguinus* is resuscitated for *Aptenodytes chrysocome* and its allies, while *Eudyptula minor* of Australia is now given as *E. m. novæ-hollandiæ*, and the extra-limital form from the Chatham Islands is termed *E. m. iredalei*, subsp. n.

15. *Nelson on a new Humming-bird.*

[Description of a new genus and species of Humming-bird from Panama. By E. W. Nelson. Smiths. Misc. Coll. vol. lxvi. No 21 (1911).]

Mr. E. A. Goldman, of the Biological Survey, U.S. Department of Agriculture, has been sent to Panama to study the Mammals and Birds of the Canal-zone and adjacent parts of the new State. He has discovered an unknown Humming-bird—not only of a new species, but of a new genus. It is allied to *Saucerottia*, "but the under tail-coverts are small and very short, and the three median ones are remarkably specialised." Mr. Nelson names this bird after its discoverer, *Goldmania violiceps*.

16. *North on Australian Nests and Eggs.*

[Nests and Eggs of Birds found breeding in Australia and Tasmania. Vol. iii., Part 2. Sydney, 1911.]

Of this valuable work, Part 2 of Vol. iii. contains the remaining portion of the Family Cacatuidæ, comprising part of the Sub-family *Cacatuinæ* and the Sub-family *Calopsittacinæ*; the Family Psittacidæ, containing the Sub-families *Palæornithinæ* and *Platycercinæ*, the two thus forming the concluding Australian portion of the Order Psittaci. As in the previous parts, the illustrations of Birds are reproduced from drawings made by the late Mr. Neville Cayley. The eggs of the different species of the Order Psittaci being all white, no plate is issued with this Part.

17. *Ogilvie-Grant on the Gallery of Birds in the British Museum.*

[Guide to the Gallery of Birds in the Department of Zoology, British Museum (Natural History). Second Edition. With 29 Plates and 7 Illustrations. London, 1910. Price 2*s.* 6*d.*]

There can be no better test of the merits of a book, and of its fitness for the object which it is intended to illustrate, than the exhaustion of the first edition and the call for a second. That this happy state of affairs prevails in the Bird-gallery at South Kensington is as pleasing to all ornithologists as, no doubt, it is to Mr. Ogilvie-Grant himself. The 'Guide' is not only useful as a Handbook for those who would view the contents of the Gallery aright, but, considering the enormous amount of information and instruction contained in it, and the numerous illustrations, is almost a history of the Class of Birds.

At any rate, nearly all the principal facts yet ascertained concerning this attractive Class of Animal Life are carefully put together and explained.

In our notice of the first edition of this excellent piece of work (see 'Ibis,' 1905, p. 486), we fully described the general plan of the 'Guide,' and need not now repeat what has already been stated. The second edition is a reprint of the first, revised and brought up to date by the author. A new plate, representing the playing place of the Gardener Bower-bird (*Amblyornis subalaris*), has been added. This extraordinary bird well merits its name. It builds a miniature cabin with different sorts of mosses, and surrounds it with a small, but perfectly kept, meadow, which is studded with brilliantly coloured flowers, fruits, and insects carefully selected by the architect. These objects, as they become faded, are constantly replaced by the industrious gardener.

Similar accounts of the strange habits and customs of various other birds in different parts of the world are found throughout the volume, which is illustrated by 36 plates, and sold at the very moderate charge of two shillings and sixpence.

18. *Parkin on the Great Auk.*

[The Great Auk. A Record of Sales of Birds and Eggs by Public Auction in Great Britain, 1806–1910. With Historical and Descriptive Notes and 5 plates. By Thomas Parkin. Hastings: Burfield & Pennells, 1911. 2*s*.]

This excellent piece of work, to which we have been looking forward for some time, is now issued as an Extra Paper to Part vi. of Vol. I. of the 'Hastings and East Sussex Naturalist,' but it can be obtained either from the author or Rowland Ward. Mr. Parkin has been at infinite trouble to determine the correct particulars of the specimens of the Great Auk and its eggs which have been sold at Stevens' Auction Rooms and elsewhere in Britain, in each case with the name of the purchasers, the price, the date of sale, and so forth; and his work will be greatly appreciated by all who have to deal with this extinct bird. The plates are representations of a sale at Stevens' Rooms, of Bullock's 'London Museum,' of an egg in the possession of Mr. Parkin himself, of another now in the Bristol Museum, and of a bird and egg formerly the property of Sir W. Milner.

19. *Reed and Wright on the Birds of Cayuga Lake.*

[The Vertebrates of the Cayuga Lake Basin, N.Y. By Hugh D. Reed and Albert H. Wright. Repr. from Proc. Am. Phil. Soc. xlviii. No. 193 (1909).]

This pamphlet on the vertebrates of the largest of the "Finger Lakes" near Ithaca, U.S.A., is based on records of the specimens obtained. The area is described (with four maps); the meteorology, the "life zones" and the status of the birds are fully discussed; and a list of 257 species added. The whole forms a piece of good local investigation, and we may note the occurrence of *Œstrelata hasitata* in 1893, and of the Passenger Pigeon so late as 1892.

20. *Reichenow on the Progress of Ornithology.*

[Ueber die Fortschritte und den gegenwärtigen Stand der Ornithologie. Eröffnungsdrede zum V. Internationalen Ornithologen-Kongress, Berlin, 1910. Von Ant. Reichenow, Präsident des Congresses. Berlin, 1910.]

No one could have been found more worthy of the Presidential chair at the Fifth International Congress of Ornithologists than Professor Reichenow, and we were all heartily glad when we heard that he had managed to overcome the difficulties that he anticipated when he was unanimously nominated for that post at the previous meeting. Of the successful issue of the Congress at Berlin, in May 1910, we have already given a general account*, but the volume containing the full text of the Presidential Address, and the papers read at that meeting, has only just appeared.

Dr. Reichenow's Address is to be recommended in every way as a masterly sketch of the past history and the present state of Ornithological science. Beginning with Linnæus, he specifies the principal advances that have been made in our knowledge of the Class of Birds during the past 150 years. Every one of the numerous branches into which Ornithology is now divided, even the bearing of our science on what is called "Aviation," is taken in turn. We will not go into particulars on the present occasion, but strongly advise all who are interested in the study of Bird-life and Bird-structure to make themselves acquainted with Professor Reichenow's excellent address. They will not fail to be instructed.

21. *Rothschild on the Ratitæ.*

[On the former and present Distribution of the so-called Ratitæ or Ostrich-like birds, with certain deductions, and a description of a new form by C. W. Andrews. By the Hon. Walter Rothschild, Ph.D. Berlin, 1910.]

As we all know, among Mr. Rothschild's favourite groups of birds are the Ostriches and their allies, on which a mass of information will be found in the paper now before us. It was read at the Internaional Ornithological Congress at Berlin in 1910, but has been only recently published. After recapitulating and criticizing the various views on this subject, of Gadow, Andrews, Fürbringer, and other authors, Dr. Rothschild gives a complete list of all the known forms, living and extinct, of the true "Ratitæ Palæognathæ." Upwards of 120 species are mentioned, and the exact locality, when known, is stated in each case. They are divided into seven families: Struthiones, Rheæ, Casuarii, Apteryges, Dinornithes, Æpyornithes, and Eremopezi. An attempt is then made at the difficult task of a "a key to the species." This is succeeded by a discussion of the distribution of the Ratitæ.

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* See 'The Ibis,' 1910, p. 710.

Finally the following conclusions are drawn:—

1. That all the known Ratitæ Palæognathæ are descended from ancestral forms capable of flight.

2. That the various groups are descended from several ancestral forms.

3. That these birds did not begin to develop till after the commencement of the Pleistocene Epoch.

Annexed to Mr. Rothschild's paper is a note by Dr. Andrews on some fragments of the fossil egg-shell of a large Struthious Bird from Southern Algeria, with remarks on some pieces of the egg-shell of an Ostrich from Northern India. On the Algerian egg-shell Dr. Andrews bases his *Psammornis rothschildi*, while the North Indian fragments are pronounced to be most like egg-shells of *Struthio molybdophanes* of Somaliland, but thicker than any Ostrich egg-shell hitherto recorded.

22. *Rothschild and Hartert on new Birds from New Guinea.*

[Preliminary Descriptions of some new Birds from Central New Guinea. By the Hon. Walter Rothschild, Ph.D., and Dr. E. Hartert. Nov. Zool. xviii. p. 159.]

Mr. Albert Meek has been able to accompany a Dutch Exploring Expedition up the Eilanden River in New Guinea and to ascend Mount Goliath, where he collected up to elevations of 5000 feet. He has sent to Tring an interesting collection, which contains examples of such rare species as *Pteridophora alberti*, *Loboparadisea sericea*, and *Parotia carolæ*, besides specimens of one species and three subspecies new to science. These are named *Paradigalla brevicauda*, *Falcinellus striatus atratus*, *Cyclopsitta blythi mecki*, and *Charmosyna stellæ goliathina*.

23. *Rubow on the Common Gull.*

[The Life of the Common Gull. Told in Photographs. By C. Rubow. London: Witherby & Co., 1911.]

This is a translation of the pamphlet already noticed in 'The Ibis' (1911, p. 395), which will be found useful to those of our members not conversant with Danish.

24. Sclater, W. L. *Record of the Ornithological Literature of* 1910.

[Zoological Record, Vol. xlvii. Aves, by W. L. Sclater, M.A. London, Nov. 1911.]

The titles of the books and papers relating to Birds contained in the Section "Aves" of the 'Zoological Record' for the year 1910 are 1708 in number against 1721 in 1909. The corresponding number in the year 1908 was 1919.

The Titles, which are the most important part of the work and come first, occupy 63 pages with double columns. The Subject-index, which follows next, is divided into eight sections, as in the previous volume, and the titles in the List are referred to in the Subject-Index by the author's name and the number of his paper in the List of Titles. This is a most simple and excellent plan, and saves an enormous amount of space. So far as we can judge from a cursory inspection the work is correctly done.

25. *Sjöstedt on the Birds of Kilimandsaro.*

[Wissenschaftliche Ergebnisse der Schwedischen zoologischen Expedition, nach dem Kilimandjaro, dem Meru, und den umgebenden Massisteppen Deutsch-Ostafricas, 1905–6, unter Leitung von Prof. Dr. Yngve Sjöstedt. Vol. I. Vögel von Yngve Sjöstedt. (179 pp., 5 pls.) Stockholm, 1910.]

This is the first volume of a series of reports on the materials collected by the important scientific expedition sent out by the Swedish Government to German East Africa in 1905. The main aim was a more thorough investigation of the grand mountain Kilimandjaro, which lies under the Equator in the northern part of the German Protectorate, but the surrounding ranges and especially the little known mountain Meru, which rises to a height of 4460 metres about thirty miles west of Kilimandjaro, were also closely examined. The Report on the Birds, prepared by Prof. Sjöstedt, the leader of the Expedition, takes up 164 pages, and is illustrated by six plates, one of which represents an interesting new Nightjar (*Caprimulgus palaminquisti*).

The memoir commences with an historical sketch of our knowledge of the Avifauna of the Kilimandjaro district, which begins with the visit of von der Decken in 1862, and was further investigated by Fischer, Johnston, Neumann, and other explorers. In spite of their efforts Prof. Sjöstedt succeeded in adding to the List 75 species previously unrecognised within the district, and, besides the *Caprimulgus* already mentioned, describes two other species (*Mirafra meruenis* and *Phyllostrephus kilimanjensis*) and one subspecies *Batis puella montana*, which are new to science. Moreover, much excellent information is given respecting many scarce and little-known species, so that this memoir will long remain an important authority on the East African Ornis.

The Ostrich of the Kilimandjaro district is assigned to *Struthio massaicus* of Neumann, but we are not told the characters which distinguish it from the other generally recognised forms.

At the conclusion of the memoir is given a complete list of the Birds of the Kilimandjaro-Meru district, 496 in all. Examples of 402 species represented by 1546 specimens were obtained by the Expedition.

25. *The South African Journal.*

[The Journal of the South African Ornithologists' Union. Vol. vii. No. 1 (July, 1911).]

This number begins with a paper by Mr. C. F. Swynnerton on nests and eggs from Mt. Chirinda in Southern Rhodesia, from which an immense amount of information may be gathered with respect to the variation of the eggs, the position of the nests, the localities chosen, and the like. We have much enjoyed the perusal of the article and of the field-notes by Mr. Odendaal, of which it almost entirely consists. A second paper by Mr. C. G. Davies continues his accounts (*cf.* J. S. A. O. U., 1908) of the Birds of the Matialete District in East Griqualand; the notes are short, and we notice that many species which bulk largely in the papers of English explorers are thought to need no prolonged mention. It would be well for the latter to take heed of this fact, in these times of diffuse writing. Some remarks on a few species from Wakkerstroom by Mr. A. Roberts form the only other contribution besides Obituary Notices, Reviews, and short Notes.

26. *Stonham's 'Birds of the British Islands.'*

[The Birds of the British Islands. By Charles Stonham, C.M.G., F.R.C.S., F.Z.S. With Illustrations by Lilian M. Medland, F.Z.S. Parts xix. & xx. London: Grant Richards, Ltd., 1911.]

With these two final parts Mr. Stonham and Miss Medland bring to a conclusion their work, of which we announced the inception in 1906 ('Ibis,' 1906, p. 732). It is a useful book, and contains much valuable information. Bound in five volumes and illustrated by 317 uncoloured plates, many of which are excellent, it will be a pleasing ornament to the ornithologists' library. Mr. Mullens' "List of Books relating to British Birds" will be very useful. That the work is much appreciated is shown by the long list of subscribers.

27. *Westell on some British Birds.*

[The Young Ornithologist. By W. Percival Westell. London, 1911; pp. i–xv., 1–311, col. frontisp. and 23 photographic reproductions.]

This book will hardly appeal to our members, as it is written for those of a younger age, but it may be found useful for their children. It is divided according to the so-called natural haunts of the birds, and includes accounts of the common and some of the rarer species. It is prefaced by an Introductory chapter by Mr. A. R. Horwood, of the Leicester Museum, entitled "Hints for the Young Ornithologist," which will be distinctly useful to those for whom it is intended.

28. *The Zoological Address-Book.*

[Zoologisches Adressbuch. Namen und Adressen der lebenden Zoologen, Anatomen, Physiologen und Zoopalæontologen, so wie der kunstlerischen und technischen Hülfskäfte. Herausgegeben auf Veranlassung der Deutschen Zoologischen Gesellschaft von R. Friedländer & Sohn. Berlin, 1911. 8vo. 1110 pp.]

This is a most useful book to all who are working in any branch of zoology—no naturalist should be without it. It contains the names, addresses, and offices of all workers and writers on zoological subjects throughout the world, beginning with "Deutschland" and ending with "Tripoli," "Morocco," and "Abyssynia." Moreover, all the principal Zoological Institutions are mentioned, and the members of their staffs are stated and named. The best shops for objects of Natural History are also included.

So far as we have been able to test it the information supplied is correct. We owe our best thanks to the German Zoological Society and to Messrs Friedländer for this excellent piece of assistance to us in our labours.

IX.—*Letters, Extracts, and Notes.*

We have received the following letters addressed "To the Editors of 'The Ibis'":—

Sirs,—It is an established fact that the red colouring matter in the feathers of the Bearded Vulture, *Gypaëtus barbatus*, and also the colouring on its eggs, are due to superficial deposits of oxide of iron, but how the oxide gets there is still, I understand, a moot point. As regards the stains on the feathers, two theories have been advanced: it has been suggested that these may be due to the fact (*a*) that the birds bathe in ferruginous streams, or (*b*) that the iron is derived from the birds' blood. Hume was inclined to think that it was the latter ('Rough Notes,' pp. 45–46), as he emphatically states that the Lammergeyer is a very dirty bird, and *never* washes. For the last twenty years or so I have been closely attending to the habits of this bird, and have hitherto always been under the impression that it neither bathes, nor drinks water. It may, therefore, be of interest to some readers of your Journal to know that while out searching for nests of this species in a lonely mountain-glen in the Koti State, close to Simla, I came across a spot to which the Lammergeyers apparently habitually resort, not only to drink, but also to bathe. One of my native hunters had often assured me that he had frequently seen these birds, and also *Gyps himalayensis*, bathing, but up to this time I had refused to believe him. To-day (the 29th October, 1911) he exultingly drew my attention to this fact.

The spot selected by these Lammergeyers for drinking and bathing was at the bottom of a small waterfall, and during the course of a couple of hours or so I noticed no less than four of them follow each other in quick succession, and without any hesitation fly straight to this place. Three of them drank and the fourth had a bath.

When drinking, the birds sat on a prominent stone which projected out from the middle of the water, and always took frequent and long draughts. The bird which took a bath alighted at first close to the edge of the stream, then walked slowly into it, and dipped its head several times in the water and splashed about with its wings. After a short time it walked back to the edge of the stream, preened its feathers a little, spread out its wings—apparently to dry them, and then took another dip. This was repeated several times, and the bath lasted for from ten to fifteen minutes.

I had no bottle or other vessel with me, and was therefore unable to bring away any of the water from this stream with a view to getting it analysed, as it would have been interesting to know for certain whether it contained any iron in solution or not. The next time that I happen to visit this spot I shall not forget to bring away some of the water.

I see that Captain F. E. S. Adair, in his book 'A Summer in High Asia' (p. 222), mentions having shot a Lammergeyer close to the Tagalang Pass, in Ladakh, when it was "drinking water at a stream."

It seems significant that in confinement the Bearded Vulture loses, or does not acquire, its tawny tint. Would it be possible to acquire this colouring matter on its feathers from mud-baths? I throw out this suggestion, because two or three years ago I noticed a Lammergeyer indulging in a bath of this nature on the ledge of a precipice. The bath lasted for about five minutes, and at the end of it the bird shook its feathers, raising a thick cloud of dust. just as a fowl does. The late Dr. Adams appears also to have noticed these birds indulging in such baths, for he says: "A red or cinnamon-coloured powder is plentifully distributed among the feathers of the neck and breast of young and adult individuals, and would seem to be composed of soil containing iron, which they obtain from dusting themselves like other birds—a habit much indulged in by the denizens of bare rocky mountains, from the bear and ibex down to the mountain finch."

I am, Sirs,
Yours, &c.,
P. T. L. Dodsworth.

'Carlton Grove.'
Simla, S.W. (Punjab), India.
November 2nd, 1911.

Sirs,—In reference to the last paragraph on p. 770, 'Ibis,' vol. v. no. 20, may we point out that the Migration Committee of the British Ornithological Club have recorded the occurrences of the nocturnal visitors at St. Catherine's Lighthouse and at most of the other lighthouses and light-vessels round the English and Welsh coasts for the last five years, and the accounts of these records will be found in the special reports published every year in the 'Bulletin of the British Ornithological Club.'

We are, Sirs,
Yours, &c.,
The B. O. C. Migration Committee.

[What the Migration Committee states is quite correct, and we regret that there should have been any misunderstanding on the subject. But under the present system the occurrences of birds at St. Catherine's Lighthouse are mixed up with those at the other Light-Stations and have to be picked out by those who wish to study them. Besides, only the autumnal occurrences are given. We still think that a complete list of *all* the occurrences at some of the principal lighthouses might be occasionally useful.—Edd.]

Sirs,—I wish to call the attention of Ornithologists to a recent number of the 'Condor' (vol. xiii. 1911, no. 4) in which Mr. Love Miller has given (p. 58) a short synopsis of our knowledge of the fossil birds of the Pacific coast of North America. The author refers especially to the bird-remains found in the remarkable asphalt-bed of Rancho la-Brea in

California. This peculiar deposit, which is of Quaternary age, contains remains of a very large number of mammals, many extinct (*e.g.* Sabre-toed Tiger, Mastodons, Great Ground-Sloths), and birds. Most of the birds belong to genera still existing, though in some cases not in the same district. One remarkable characteristic is the preponderance of the remains of predatory birds, especially of those feeding on carrion, and it has been suggested that this may be accounted for by supposing that these birds, in feeding on the dead and dying mammals caught in the asphalt deposits, were frequently involved themselves in the sticky mass. The most notable of these predatory forms is *Teratornis merriami*, representing a new genus and species, probably most nearly related to the Cathartidæ, but at the same time shewing some characters approximating to those of the Falconidæ, and even of the Serpentariidæ. In fact, this peculiar species will probably have to be referred to a new family.

From the same deposit representatives of several genera, especially interesting from the point of view of geographical distribution, have been found; the most important of these genera are *Sarcorhamphus*, *Cathartes*, *Pavo*, *Ciconia*, and *Mycteria*.

I am, Sirs,
Yours, &c.,
Chas. W. Andrews.

Sirs,—Some interesting remarks by Mr. Dewar in the 'Field' of Nov. 18th, p. 1084, on the aerial speed of one of our commonest British Sandpipers affords a fitting opportunity for considering the proper spelling of its English name. The form "dunlin" adopted by Mr. Dewar is doubtless that which is to be found in most works on British birds; but the question is, looking to the etymology of the name and the oldest form of it, whether this is correct. I venture to think not, and for the following reasons.

The meaning of the name "dunling" is the little dun thing, a diminutive akin to grayling, titling, sanderling, duckling, and gosling, and this is the spelling to be found in the oldest mention of the name, which occurs in the 'Durham Household Book,' containing the accounts of the Bursar of the Monastery of Durham, A.D. 1530–1534. The price then paid for these little birds, known elsewhere as stint, purre, sand-lark, and ox-bird, was at the rate of 4*d.* a dozen.

In an article on "English Bird Names," published in the 'Field' of Jan. 12th, 1884, I took occasion to refer to what I conceive to be the proper spelling of the name "dunling," and in the second edition of my 'Handbook of British Birds' (1901) I explained more fully the reason for the change. This led to a correspondence with the late Professor Newton, who, with the approbation of Professor Skeat, wrote me that he was convinced of the correctness of my view, and that he should adopt the spelling "dunling" when next he had occasion to mention the species in print. This he accordingly did in his 'Ootheca Wolleyana,' pt. 3, pp. 225–226, a fact which seems to have been generally overlooked. This, I venture to think, should settle the question, for no one will dispute the critical acumen invariably displayed by the late distinguished professor of zoology in all matters ornithological. Those who may feel any hesitation in adopting the more correct spelling will, in order to be consistent, have to consider the logical necessity for dropping the "g" in such names as titling, brambling, grayling, sanderling, duckling, and gosling, thereby providing in each case a veritable cockney termination.

I am, Sirs,
Yours, &c.,
J. E. Harting.

Edgewood, Weybridge.

Sirs,—In a notice of my paper in the Nov. Zool. (vol. xviii. pp. 1–22) the reviewer has fallen into a serious error in concluding ('Ibis,' October 1911, p. 763) that "Mr. Mathews is ready to adopt 'Brisson's' names".

I can scarcely understand how that was written in face of my statement—"but my main, and to me, unanswerable argument *against* Brisson was that he was non-binomial."

As my arguments appear to have been so misunderstood by the reviewer, I may be allowed to briefly summarize my position in this matter. It is noteworthy that this is a question upon which the leaders of the B. O. U. have, at times, given their opinions in favour of the rejection of the Brissonian genera. I am still convinced of the impropriety of admitting the Brissonian genera, and in this matter I am at one with the leaders of the B. O. U., as the following excerpts will show.

In noticing Dr. Hartert's paper regarding the non-recognition of these names, the reviewer in 'The Ibis' (1903, p. 418) wrote: "It is more logical for binomialists to discard Brisson's nomenclature altogether"; and in a paper in 'The Ibis' (1905, p. 85 *et seqq.*) Dr. Sclater wrote (p. 88): "There are, however, some authors who maintain that Brisson, not having been a Binomialist, ought not to be allowed to found genera in a Binomial System. Dr. Hartert is strongly of that opinion (see 'Ibis,' 1903, p. 418), and I, though I have usually followed the lead of my friend and master, Strickland, have always thought that it was a mistake to have made this special exception in favour of Brisson."

Mr. Ogilvie-Grant, of the Bird Department in the British Museum and Editor of the 'Bulletin of the British Ornithologists' Club,' rejected the Brissonian genera in his volumes of the 'Catalogue of Birds in the British Museum.'

Now is the time for the B. O. U. to shew their firmness in dealing with this disturbing factor; and by unanimously approving of the rejection of these illegal Brissonian names, they will bring about a nomenclature that will be more stable than any hitherto employed. There should be no hesitation in this matter, as this has been the most unsettling feature of ornithological nomenclature in recent years. All *unprejudiced* writers who have had to note them have voiced their disapproval of their recognition. In the Nov. Zool. vol. xvii. pp. 492–503, I have pointed out how few alterations are necessary if the Brissonian genera are rejected.

Upon the matter of the nomenclature of the Wheatears and Chats, my reviewer wrote: "We cannot agree with Mr. Mathews's reasoning on this subject. *Motacilla œnanthe* was one of the three birds included in his genus *Saxicola* by Bechstein in 1802, and that name has been almost universally applied to the Wheatears ever since that period."

This statement is scarcely correct. I shewed that from 1802 until 1841 *Saxicola* was used for the Chats, and it is from 1841 that it has been misapplied. Dr. Sclater will be interested in the following note, written by his "friend and master, Strickland," regarding this very point: "The name *Rubetra*, now first introduced *as a genus* (for the Chats) by Mr. Gray, ought not to supersede the old genus *Saxicola* Bechst. as restricted by Bonaparte" (Ann. & Mag. Nat. Hist. vol. vi. p. 422, 1841). Unfortunately, in this instance, where he was undoubtedly right, Strickland was not followed, and hence this upset seventy years later.

The only method of dealing with such matters as this is to treat them at once, and in a very short time uniformity of nomenclature will be attained. Thus, the Chats must have a generic name, as *Pratincola* is not available. Then why not use at once the correct name for the genus, *Saxicola*? No other logical course is open, and to try "by a little manipulation" to stave off the change, is a childish method of approaching a difficulty.

I am only interested in the nomenclature of European and American birds so far as members of these Avifaunas straggle to Australia. If I see such glaring errors as those mentioned above go uncorrected, I can have no faith whatever in the nomenclature of any form, and I have to consider each name as absolutely wrong until proven right. Whereas, if I see the errors I come across at once corrected, I can feel assured that I have a firm basis to work upon, and that if the names be proven wrong it is not due to wilful neglect.

I am, Sirs,
Yours, &c.,
GREGORY M. MATHEWS.

Langley Mount, Watford,
November 18th, 1911.

The Dresser Collection of Birds' Eggs.—Upwards of twelve years ago the Dresser Collection of Birds was transferred to the Museum of the Victoria University of Manchester, and quite recently the Dresser Collection of Palæarctic eggs has gone to the same Museum, together with the library of books on ornithology and oology. These collections and the library will be kept together as the "Dresser Collection" and will be restricted to Palæarctic Ornithology and Oology.

The egg-collection is especially valuable on account of the extreme care that has been taken to restrict it to eggs which have been carefully authenticated, and most of them have a full history. It contains examples of almost all the eggs yet known of European and Eastern Palæarctic species, most of them in good series and in full clutches. The following is a list of some of the rare species which are well represented:—*Turdus dubius*, *T. naumanni*, *T. ruficollis*, *T. varius*, and *T. sibiricus*; *Saxicolæ albinigra*, *S. finschi*, and *S. chrysopygia*; *Emberizæ rustica*, *E. pusilla*, and *E. cinerea*; *Podoces panderi* and *P. humilis*; *Calidris arenaria*; *Tringa canutus* and *T. subarquata*; *Numenius tenuirostris*; *Ibidorhynchus struthersi*; *Pagophila eburnea*; *Xema sabinii*, besides ten eggs of *Rhodostethia rosea* which show full variation.

The library contains copies of many rare works, as well as several authors' "own" copies, interleaved with original MS. notes; for instance, the late Dr. Jerdon's own copy of the 'Birds of India' with his notes and the last letter he wrote before his death.

The authorities of the Victoria University will not fail, we trust, to appoint a Curator who understands birds and their eggs to take care of these valuable additions to that institution.

The Bombay Natural History Society.—This well-known Society issues an appeal for £2000 to enable it to procure fresh specimens of the Fauna of British India for its Museum. The services of Mr. Shortridge (late of the New Guinea Expedition of the B.O.U.) have already been secured for two years, but a second collector is much wanted. The Indian Museum at Calcutta is, no doubt, the leading institution of the kind in India, but the great Western Province ought also to have its claims for support duly considered.

The New Guinea Expedition of the B. O. U.—At the meeting of the B. O. C. on Oct. 17th last, Mr. Goodfellow gave a very interesting general statement on the birds observed and collected by the Expedition, after which Mr. A. F. Wollaston made additional remarks about the conditions of travel in the district of New Guinea visited, which appeared to be of the most serious kind (*cf.* Bull. B. O. C., vol. xxix, p. 2). At the following meeting on Nov. 8th (see Bull. B. O. C. vol. xxix. p. 19) the Gaumont Company gave a very successful exhibition of a series of lantern-slides and cinematographic pictures taken by the Members of the Expedition in Central New Guinea. Mr. A. F. R. Wollaston explained the scenes as they were thrown on the screen, and added some interesting observations regarding the manners and customs of the natives.

All the specimens collected have been presented to the British Museum. That they are much appreciated by the Trustees is shown by the following letter, which has been addressed by Mr. Fletcher, the Director of the Museum at South Kensington, to Mr. Ogilvie-Grant, the Secretary of the New Guinea Committee.

"I have had the honour of laying before the Trustees of the British Museum a report of the receipt at the Museum of the valuable collection of zoological specimens from Dutch New Guinea, Amboina, and Aru made by the

Expedition sent out in the year 1909 under the auspices of the British Ornithologists' Union, and presented to the Trustees by the Subscribers to the Expedition Fund.

"The Trustees were informed that the collections received, numbering altogether some 7870 specimens, of which about 2750 are birds and nearly 500 mammals, are of great interest and importance, as coming, for the most part, from a hitherto unexplored portion of a specially interesting locality. They were impressed by the public spirit so generously displayed by the Subscribers to the Fund, and they directed me to request you to convey to the Committee of the Expedition and to all the Subscribers the expression of their special thanks.

"The Trustees would add an assurance of their high appreciation of the work of the members of the Expedition. They recognise that this work entailed very arduous labours on the part of these gentlemen, who underwent considerable hardships in carrying out the mission entrusted to them, the result of which has been to enrich considerably the National Collections."

The collection of Birds is now being carefully examined under the superintendence of Mr. Ogilvie-Grant, and the results will be published in 'The Ibis.'

The Passenger Pigeon.—In the new edition of the American 'Check-list' it is stated that the celebrated Passenger Pigeon (*Ectopistes migratorius*), which formerly bred in enormous quantities all over the forests of North America, is "now probably extinct," and great researches have been made to find some possible survivors of a bird formerly so abundant*. From a recent number of the 'Zoological Society Bulletin' (No. 46, p. 781), we learn that the only still living example of this species yet discovered in the United States is a solitary female in the Zoological Garden of Cincinnati, about nineteen years old, so that there is not much prospect of replacing the species in the list of living Birds. On enquiry in Regent's Park we are informed that the last living Passenger Pigeons received by the Zoological Society of London were three examples presented in 1883 by Mr. G. F. J. Thompson. Two of these died in 1884, and the third in 1889.

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* See above, p. 187.

In September 1856, when the writer was in the forests of Minnesota, the Passenger Pigeon was the most abundant bird for culinary purposes to be found, and many of them were shot and eaten.

There are twenty-one specimens of this Pigeon in the British Museum.

New Work on Migration.—Under the title of "Studies in Bird-Migration," Messrs. Gurney & Jackson will shortly publish a work by Mr. Eagle Clarke, one of our leading authorities on this important subject. As is well known to most of us, Mr. Eagle Clarke, in pursuit of information required for his task, has undertaken a series of personal investigations at various light-stations round the British coasts, making more or less long stays at the Eddystone Lighthouse, the Kentish Knock, the Flannan Isles, Fair Island (between the Orkneys and the Shetlands), and St. Kilda, spending altogether no fewer than fifty weeks in these isolated and remote spots. The results of Mr. Eagle Clarke's unrivalled experiences are of the most interesting character, and will form a very valuable contribution to the study of "Bird-Migration."

Death of Mr. R. H. Porter.—We regret to announce the death of Mr. Richard Henry Porter, of 7 Princes Street, Cavendish Square, London, the Publisher of this Journal since 1904. Mr. Porter was well known to many members of the B. O. U., and from his excellent acquaintance with zoological literature was often of great assistance to them. Amongst other works he published Lilford's 'British Birds,' Sclater's 'Jacamars and Puff-birds,' Sclater and Hudson's 'Argentine Ornithology,' Shelley's 'Sun-birds,' Seebohm's 'British Birds,' Mivart's 'Lories,' and Sclater and Thomas' 'Book of Antelopes.' Mr. Porter died on August the 22nd, 1911, at his home in Hanwell, aged 64 years. He is succeeded in his business by his son (Mr. E. A. Porter), who carries it on under the same name.

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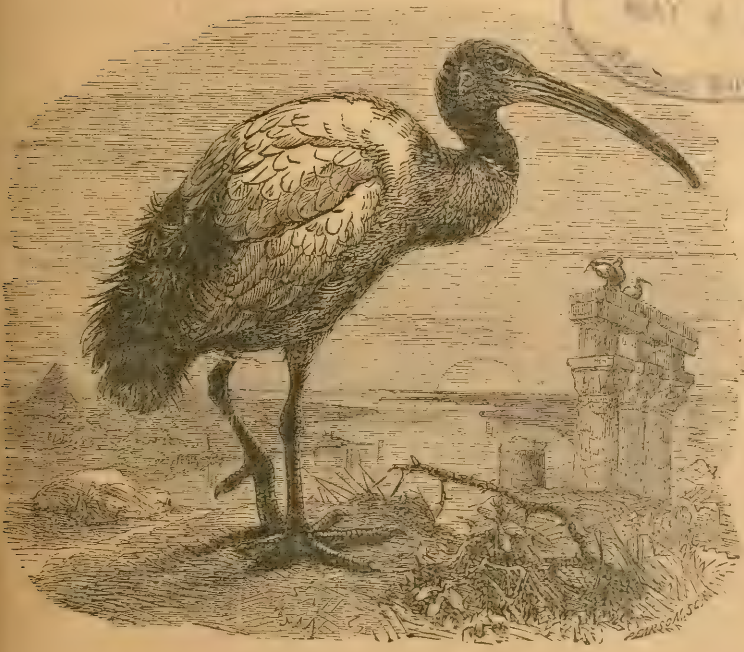

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Publications received since the issue of No. 21, Ninth Series, and not noticed in the present Number.

37. 'Aquila.' Zeitschrift für Ornithologie. (Tom. xviii., Budapest 1911.)
38. 'The Auk.' (Vol. xxix. No. 1. 1912.)
39. 'The Austral Avian Record.' (Vol. 1. No. 1. London, 1912.)
40. Beebe, C. W., and Lee, S. C. The Undescribed Juvenal Plumage of the Yucatan Jay. (Zoologica, Vol. i. No. 7. New York, 1911.)
41. 'Bird Notes.' Journal of the Foreign Bird Club. (Vol. iii. Nos. 1, 2. 1912.)
42. 'Bird Notes and News.' (Vol. iv. No. 7. 1911.)
43. 'British Birds.' (Vol. v. Nos. 9, 10. 1912.)
44. Butler, A. L. The Finches and Weaver Birds of the Sudan. (Wellcome Trop. Res. Repts. Vol. B. Khartoum, 1911.)
45. Campbell, A. J. A History of Australian Ornithological Research. An Address to the R. A. O. Union. (Emu, Vol. xi. 1912.)
46. 'The Condor.' (Vol. xiv. No. 1. 1912.)
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NINTH SERIES.

No. II. APRIL 1912.

X.—*On a Collection of Birds made by* Mr. Willoughby P. Lowe *on the West Coast of Africa and outlying Islands; with Field-Notes by the Collector.* By David A. Bannerman, B.A., M.B.O.U.

(Plate IV. and Text-figs. 2 & 3.)

In the autumn of 1910 Captain C. E. Hardy, R.N., H.M.S. 'Mutine,' received orders to carry out a magnetic survey on the West and South-east coasts of Africa. Being much interested in Natural History he was most anxious that this trip should be utilized to enrich the collections at the Natural History Museum, and very kindly invited Mr. W. R. Ogilvie-Grant, or any ornithologist he might recommend, to join the ship at Capetown by the end of November (1910). Mr. Willoughby P. Lowe, an excellent naturalist and field-collector, was fortunately able to avail himself of this admirable opportunity, and while the guest of Captain Hardy, visited many interesting places, and formed a large and valuable zoological collection, chiefly of birds. Mr. Lowe worked with his characteristic energy, and, although, owing to rough weather and other causes, he was unable to spend as much time on land as he had hoped, yet he managed to secure examples of a large variety of species. Many of them have proved exceedingly interesting, and several valuable additions and novelties were secured for the National Collection.

Leaving Capetown at the end of November, Captain Hardy, after visiting Ichabo Island, gradually worked his way up the West Coast of Africa to Sierra Leone, and returned thence to Capetown in April, 1911. He was anxious that Mr. Lowe should remain on the 'Mutine' and continue his work up the south-east coast as far as Zululand; but the possibilities of landing on those storm-beaten shores seemed so remote that this part of the original programme was abandoned, and Mr. Lowe returned to England with his collections. This decision was, no doubt, wise, for Captain Hardy subsequently informed us that he had met with very rough weather, and had been unable to land anywhere during his trip up the south-east coast.

The collection includes examples of three new species, *Sylviella lowei*, *Sylviella hardyi*, and *Cinnyris kruensis* (which have already been described in the 'Bulletin' of the British Ornithologists' Club), besides interesting coastal forms, such as *Anthus gouldi*, *Mirafra occidentalis*, and *Dicrurus assimilis atactus*.

The female of *Pyromelana aurea* is described for the first time, from an example which Mr. Lowe obtained at St. Paul de Loanda.

The majority of the specimens were procured in Liberia. Sixteen species have been added to the List of Birds of that country which was compiled by Mr. Charles Chubb, and published in the second volume of Sir Harry Johnston's work on Liberia (1906).

The following is a list of the species which have been added to the known avifauna of Liberia; all the specimens were obtained in the costal districts, and the exact localities are recorded in the following pages.

Dicrurus assimilis atactus.
Anthus gouldi.
Cinnyris kruensis.
Anthothreptes tephrolæma.
Camaroptera chrysocnemis.
Hirundo griseopyga.
Psalidoprocne obscura.
Coccystes glandarius.
Chrysococcyx smaragdineus.
Caprimulgus accræ.
Strepsilas interpres.
Squatarola helvetica.
Sterna maxima.
Oceanites oceanicus.
Turtur erythrops.
Turnix lepurana.

(*Buteo auguralis* was identified by Mr. Lowe, but not procured).

Two interesting islands were visited by the 'Mutine,' namely Annobon and Ichabo. As no notes on the latter place have ever appeared, I append to the paper (see p. 263) an excellent account of this guano-island by Mr. Lowe, and a map prepared by Captain Hardy, shewing clearly the distribution of the various birds found breeding there. Ichabo Island is noteworthy from the fact that *Sula capensis* breeds there in countless numbers in company with Cormorants of several species, and Penguins. Mr. William Sclater tells me that it is most unusual to find the Cape Gannet breeding on an island resorted to by so many other species, and that, as a rule, it prefers a solitary islet inhabited by its own kind only.

In order to minimise space and at the same time give a complete report on Mr. Lowe's collection, I have divided the part dealing with the birds into two portions. In the first I have given a complete list of every species collected and the locality from which it was obtained. Generally well-known birds, which I have not deemed of sufficient interest or importance to require any special remark, are contained in this list, as the only interest attaching to them is the locality from which they were procured. The second part contains the birds of which special mention must be made, or to which useful field-notes are attached, with references to Dr. Reichenow's 'Die Vögel Afrikas,' or to other works bearing on the subject. To the names of these latter species an asterisk is attached in the list.

Throughout this paper I have quoted Dr. Reichenow's work 'Die Vögel Afrikas' as 'Reich.'

Field-notes supplied by Mr. Lowe are placed in square brackets and his initials appended.

The greatest appreciation must be felt of the generous offer of Captain Hardy to take a naturalist with him during his survey of the West Coast of Africa, and for the great kindness shown by himself and the officers of H.M.S. 'Mutine' to Mr. Lowe. Throughout the voyage every means was placed at Mr. Lowe's disposal to facilitate his collecting, and the results, as will be seen from the following pages, have proved of great value.

In the accompanying map (text-fig. 2) will be seen all the places visited, while a short itinerary is given, which may possibly prove of service.

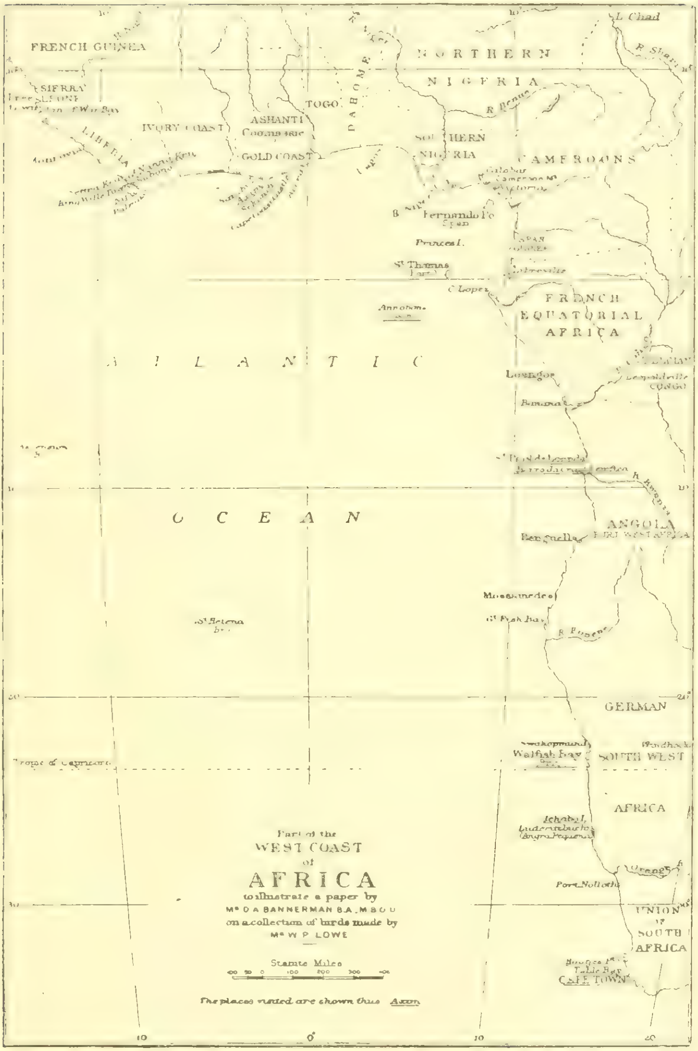
Itinerary of the Voyage.

Table Bay	24th to 30th Nov. 1910.
Hontjeo Point	25th Nov. 1910.
Ichabo Island	3rd to 5th Dec. 1910.
Walfish Bay	8th to 9th Dec. 1910, and 1st April, 1910.
St. Paul de Loanda	13th to 15th Dec. 1910, and 24th to 25th March, 1911.
Bemfica	15th Dec. 1910.
Morro da Cruz	15th Dec. 1910.
Annobon Island..............	18th Dec. 1910.
Sekondi (Gold Coast)	22nd to 27th Dec. 1910, and 1st March, 1911.
Nifu (Liberian Coast)	30th Dec. 1910.
Nanna Kru (Liberian Coast) ..	31st Dec. 1910 to 13th Jan. 1911, and 20th to 25th Jan. 1911.
Settra Kru (Liberian Coast) ..	14th to 19th Jan. 1911.
King Will's Town (Liberian Coast)	1st Jan. 1911.
Sierra Leone	28th Jan. to 6th Feb., and 7th to 12th March, 1911.
Man-of-War Bay (Sierra Leone)	2nd Feb. 1911.
Subono (Liberian Coast)	10th Feb. and 4th March, 1911.
Axim (Gold Coast)	12th to 28th Feb. 1911.

My sincere thanks are due to Mr. W. R. Ogilvie-Grant for giving me every facility in working out this collection, and for looking over my proofs, and also to his attendant, Mr. Wells.

I am further deeply indebted to Mr. Charles Chubb, of the British Museum, and to Mr. Claude Grant, for their valuable aid, but especially to Mr. W. L. Sclater, whose knowledge of African birds has been of the greatest assistance to me.

Text-fig. 2.


L Chad
R Shari
FRENCH GUINEA
SIERRA LEONE
LIBERIA
IVORY COAST
ASHANTI
Coomassie
GOLD COAST
TOGO
DAHOMEY
NORTHERN NIGERIA
R Benue
SOUTHERN NIGERIA
CAMEROONS
Fernando Po
Princes I.
St Thomas
C Lopez
Annobon
FRENCH EQUATORIAL AFRICA
Loango
Leopoldville
CONGO
St Paul de Loanda
ATLANTIC OCEAN
ANGOLA
Benguella
Mossamedes
St Helena
GERMAN SOUTH WEST AFRICA
Swakopmund
Walfish Bay
Windhuk
Tropic of Capricorn
Lüderitzbucht
Angra Pequena
Orange R
Port Nolloth
UNION OF SOUTH AFRICA
Table Bay
CAPE TOWN
Part of the
WEST COAST
of
AFRICA
to illustrate a paper by
Mr D A BANNERMAN B.A., M.B.O.U.
on a collection of birds made by
Mr W P LOWE
Statute Miles
100 50 0 100 200 300 400
The places visited are shown thus Axon
10
0°
10
20

Sketch-map of part of the West Coast of Africa.

PART I.

List of the Species of which specimens were obtained by Mr. W. P. Lowe, with localities.

[The asterisk denotes that special reference is made to the particular species in Part II. of the paper.]

**Corvus scapulatus* Daud.	Subono; St. Paul de Loanda.
**Pholidauges leucogaster* (Gm.)	Nanna Kru; Settra Kru; Sierra Leone.
Lamprocolius cupreicaudus (Temm.)	Nanna Kru.
Onycognathus hartlaubi (Gray)	Nanna Kru.
**Dicrurus assimilis atactus* Oberh.	Nanna Kru; Sekondi.
**Oriolus larvatus brachyrhynchus* Swains.	Axim.
Malimbus malimbicus (Daud.)	Nanna Kru.
Malimbus nitens (Gray)	Axim; Sekondi.
Malimbus scutatus (Cass.)	Nanna Kru; Sekondi.
Malimbus rubricollis bartletti Sharpe	Nanna Kru; Sekondi.
Cinnamopteryx castaneofuscus (Less.)	Nanna Kru; Sierra Leone; Sekondi; Axim.
Hyphantornis cucullatus (Vieill.)	Nanna Kru; Nifu; King Will's Town; Sierra Leone.
Hyphantornis aurantius (Müll.)	Nanna Kru; Subono.
Hyphantornis auricapillus (Cass.)	St. Paul de Loanda.
Sitagra brachyptera (Swains.)	Nanna Kru; Sierra Leone; Sekondi.
**Pyrenestes ostrinus* (Vieill.)	Sierra Leone.
Quelea erythrops (Hartl.)	Subono.
Quelea quelea Linn.	St. Paul de Loanda.
**Pyromelana aurea* (Gm.)	St. Paul de Loanda.
Pyromelana afra (Gm.)	Nanna Kru.
Penthetria macrura (Gm.)	Nanna Kru; Nifu.
Spermestes bicolor (Fraser)	Nanna Kru; Settra Kru; Man-of-War Bay; Sekondi; Axim.
Spermestes cucullatus (Swains.)	Sierra Leone; Man-of-War Bay.
**Nigrita bicolor* (Hartl.)	Nanna Kru; Sekondi; Axim.
Nigrita emiliæ Sharpe	Sierra Leone; Sekondi; Axim.
Uræginthus bengalus angolensis (Linn.).	St. Paul de Loanda.
Sporæginthus melpoda (Vieill.)	Nanna Kru; Nifu; Axim.
Lagonosticta brunneiceps Sharpe	Sierra Leone.
Lagonosticta rufopicta (Fraser)	Sekondi; Axim.

Vidua principalis Linn.	Nanna Kru.
Passer griseus (Vieill.)	Axim; Sekondi; St. Paul de Loanda.
Fringillaria tahapisi (Smith)	St. Paul de Loanda.
*_Mirafra occidentalis_ Hartl.	St. Paul de Loanda.
*_Pyrrhulauda verticalis_ (Smith)	St. Paul de Loanda.
Motacilla flava Linn.	Nanna Kru; Nifu; Subono; Axim.
*_Anthus gouldi_ Fraser	Nanna Kru; Settra Kru; Subono; Man-of-War Bay.
Macronyx croceus (Vieill.)	Sierra Leone.
*_Anthothreptes tephrolæma_ (Jard., Fraser).	Settra Kru.
Anthothreptes collaris hypodilus (Jard.).	Nanna Kru; Sekondi; Sierra Leone.
*_Cinnyris adelberti_ Gerv.	Nanna Kru.
*_Cinnyris verticalis_ (Lath.)	Nanna Kru; Subono; Sierra Leone; Axim.
Cinnyris cupreus (Shaw)	Axim.
Cinnyris obscurus (Jard.)	Nanna Kru; Settra Kru; Sekondi; Axim.
*_Cinnyris fuliginosus_ (Shaw)	Nanna Kru; Subono.
Cinnyris splendidus (Shaw)	Sierra Leone; Axim.
Cinnyris chloropygius (Jard.)	Nanna Kru; Settra Kru; Sekondi; Sierra Leone.
Cinnyris johannæ Verr.	Nanna Kru.
Cinnyris mariquensis bifasciatus (Shaw)	Bemfica; Morro da Cruz; St. Paul de Loanda; Axim.
Cinnyris venustus (Shaw)	Nanna Kru; Nifu; Subono.
*_Cinnyris kruensis_ Bannerman	Nanna Kru; Axim; Sekondi.
Chalcomitra acik (Antin.)	King Will's Town; Sierra Leone; St. Paul de Loanda.
*_Pholidornis rushiæ ussheri_ Reich.	Axim.
*_Zosterops griseivirescens_ Bocage	Annobon Island.
Zosterops senegalensis Bonap.	Sierra Leone.
Pomatorhynchus senegalus (Linn.)	Sierra Leone; Axim.
Harpolestes australis (Smith)	Bemfica; Mora da Cruz; St. Paul de Loanda.
Nicator chloris (Less.)	Nanna Kru; Axim.
Chaunonotus sabinei (Gray)	Axim.
Laniarius major (Hartl.)	Axim.
Dryoscopus gambensis (Licht.)	Settra Kru; Sierra Leone.
Lanius humeralis smithi (Fraser)	Subono; Nifu; Sekondi.
Cisticola lateralis (Fraser)	Nanna Kru; Subono; Nifu.

Cisticola rufopileata Reich.	St. Paul de Loanda.
Cisticola erythrops (Hartl.)	Axim.
Cisticola rufa (Fraser)	Nanna Kru; Man-of-War Bay.
Cisticola terrestris (Smith)	Bemfica; Morro da Cruz; St. Paul de Loanda.
Prinia mystacea Rüpp	Nifu.
**Sylvia hortensis* Linn.	Sierra Leone.
Phylloscopus rufus (Bechst.)	Sekondi.
Hypolais polyglotta (Vieill.)	Sekondi.
Sylviella flaviventris (Sharpe)	Axim; Sekondi.
**Sylviella hardyi* Bannerman	Sierra Leone.
Sylviella lowei Grant	St. Paul de Loanda.
**Camaroptera chrysocnemis* Licht.	Settra Kru.
Camaroptera concolor Hartl.	Sekondi.
Hylia prasina (Cass.)	Nanna Kru.
**Turdus pelios* (Bonap.)	Sierra Leone.
Cossypha verticalis Hartl.	Sierra Leone.
**Alethe diademata* (Temm.)	Nanna Kru.
Pratincola rubetra (Linn.)	Sierra Leone.
Saxicola œnanthe (Linn.)	Sierra Leone.
Saxicola familiaris galtoni (Strickl.).	St. Paul de Loanda.
Turdinus gularis (Sharpe)	Axim.
**Turdinus puveli* Salvad.	Sierra Leone.
Criniger verreauxi Sharpe	Nanna Kru; Axim.
Bleda simplex (Hartl.)	Settra Kru; Sierra Leone; Axim; Sekondi.
Bleda canicapilla (Hartl.)	Axim.
Bleda leucopleura (Cass.)	Nanna Kru; Settra Kru; Axim.
Andropadus indicator (Verr.)	Settra Kru.
Andropadus minor Boc.	Sierra Leone.
Andropadus virens (Cass.)	Nanna Kru: Settra Kru; Sierra Leone; Sekondi.
Andropadus gracilirostris Strickl.	Nanna Kru; Settra Kru; Subono; Axim; Sekondi.
Pycnonotus barbatus (Desf.)	Nifu; Sekondi.
**Alseonax comitata* (Cass.)	Axim.
**Muscicapa grisola* Linn.	Nanna Kru; Axim.
Batis senegalensis (Linn.)	Sekondi.
**Bias musicus* Vieill.	Nanna Kru; Settra Kru; Subono; Sierra Leone; Sekondi.
Platystira cyanea (Müll.)	Nanna Kru; Settra Kru; Sierra Leone; Axim.
**Elminia longicauda* (Swains.)	Sierra Leone.
Hirundo puella Temm.	Axim.

**Hirundo rustica* Linn.	Nanna Kru: Axim.
**Hirundo griseopyga* Sundev.	Nanna Kru.
**Hirundo leucosoma* Swains.	Axim.
**Psalidoprocne obscura* (Temm.)	Nanna Kru; Sierra Leone; Sekondi.
**Campothera maculosa* (Valenc.)	Sierra Leone.
Campothera nivosa (Swains.)	Axim.
Mesopicus pyrrhogaster (Malh.)	Nanna Kru: Sekondi.
**Mesopicus pœocephalus* (Swains.)	Sierra Leone.
Dendropicus lafresnayi Malh.	Sierra Leone.
Indicator exilis (Cass.)	Sierra Leone.
Lybius bidentatus (Shaw)	Sierra Leone.
Tricholæma leucomelas (Bodd.)	Bemfica; Morro da Cruz.
Gymnobucco calvus (Lafr.)	Nanna Kru; Settra Kru; Axim.
Barbatula scolopacea (Temm.)	Nanna Kru; Sierra Leone; Sekondi; Axim.
**Barbatula chrysopyga* Shelley	Nanna Kru; Sekondi.
Barbatula duchaillui Cass.	Nanna Kru.
Trachyphonus goffini (Schl.)	Nanna Kru; Axim.
**Turacus persa* (Linn.)	Sekondi; Axim.
Turacus macrorhynchus (Fraser)	Nanna Kru.
Centropus senegalensis (Linn.)	Nanna Kru; Subono; King Will's Town; Sierra Leone; Axim.
Centropus superciliosus Hempr.	St. Paul de Loanda.
**Coccystes glandarius* (Linn.)	Nifu; Axim.
**Ceuthmochares flavirostris* (Swains.).	Sierra Leone.
**Chrysococcyx smaragdineus* (Swains.).	Nanna Kru; Axim.
**Chrysococcyx cupreus* (Bodd.)	Subono; Axim.
**Chrysococcyx klaasi* (Steph.)	Nanna Kru; Sekondi.
Colius castanotus Verr.	St. Paul de Loanda.
Colius indicus angolensis Reich.	St. Paul de Loanda.
Cypselus caffer Licht.	Axim.
**Tachornis parvus brachypterus* Reich.	Nanna Kru.
**Caprimulgus accræ* Shelley	Nanna Kru.
**Scotornis climacurus* (Vieill.)	Nanna Kru.
Bycanistes fistulator (Cass.)	Subono.
Lophoceros elegans (Hartl.)	Bemfica; Morro da Cruz.
Lophoceros semifasciatus (Hartl.)	Nanna Kru; Axim.
Merops superciliosus Linn.	Bemfica; Morro da Cruz.
Merops albicollis Vieill.	Nanna Kru; Settra Kru; Sierra Leone; Sekondi.
Melittophagus gularis (Shaw)	Nanna Kru; Sekondi.

Melittophagus meridionalis Sharpe	St. Paul de Loanda.
**Coracias caudatus* Linn.	St. Paul de Loanda.
**Eurystomus afer* (Lath.)	Nanna Kru; Nifu; King Will's Town; Axim.
**Halcyon senegalensis* (Linn.)	Nanna Kru; Sekondi.
Halcyon chelicutensis (Stanl.)	St. Paul de Loanda.
Halcyon torquatus forbesi Sharpe	Sierra Leone.
Corythornis cyanostigma (Rüpp.)	Sierra Leone; Sekondi; Axim.
Alcedo quadribrachys Bonap.	Sierra Leone.
Ceryle rudis (Linn.)	Sierra Leone; Sekondi.
Ceryle maxima (Pall.)	Sierra Leone.
**Pœocephalus rueppelli* Gray	Bemfica; Morro da Cruz; St. Paul de Loanda.
**Cerchneis* sp. inc.	St. Paul de Loanda.
**Baza cuculoides* (Swains.)	Nanna Kru.
**Milvus ægyptius* (Gm.)	Nifu.
**Gypohierax angolensis* (Gm.)	Nanna Kru; Settra Kru; Axim.
**Buteo auguralis* (Salvadori)	Sierra Leone.
**Polyboroides typicus* Smith	Sierra Leone.
**Neophron monachus* (Temm.)	Sekondi.
Pelecanus rufescens Gm.	Walfish Lagoon.
**Sula capensis* (Licht.)	Houtjes Point; Walfish Bay; Ichabo Island.
**Phalacrocorax lucidus* (Licht.)	Walfish Bay; Ichabo Island; St. Paul de Loanda.
**Phalacrocorax capensis* (Sparrm.)	Table Bay; Houtjes Point; Ichabo Island.
Phalacrocorax africanus (Gm.)	Ichabo Island.
Phalacrocorax neglectus (Wahlb.)	Ichabo Island.
**Phœnicopterus minor* Geoffr.	Walfish Bay; Walfish Lagoon.
Butorides atricapilla (Afzel.)	Nanna Kru; Sierra Leone.
**Butorides sturmi* (Wagl.)	Nanna Kru.
Melanophoyx ardesiaca (Wagl.)	Settra Kru; Sierra Leone; Man-of-War Bay; Annobon Island.
Ardea purpurea Linn.	Sekondi.
Otis melanogaster Rüpp.	St. Paul de Loanda.
**Œdicnemus vermiculatus* Cab.	Nanna Kru.
**Galactochrysea liberiæ* (Schl.)	Nanna Kru.
Tringa subarquata (Güld.)	Table Bay; Walfish Bay.
Calidris arenaria (Linn.)	Walfish Bay.
Glottis nebularius (Gunn.)	Sierra Leone.
Tringoides hypoleucus (Linn.)	Nifu; Subono; Sekondi; Sierra Leone.
Numenius phæopus (Linn.)	Nanna Kru.

**Recurvirostra avocetta* Linn.	Walfish Bay.
Ægialitis hiaticola Linn.	Nifu.
Ægialitis venusta (Fischer)	Walfish Bay.
Ægialitis pallida Strickl.	Walfish Bay.
Ægialitis marginata tenella Hartl.	Nanna Kru; Bemfica; Morro da Cruz.
**Squatarola helvetica* (Linn.)	Nanna Kru.
**Strepsilas interpres* (Linn.)	Nifu.
**Stercorarius crepidatus* (Banks)	Table Bay; Walfish Bay.
**Larus hartlaubi* (Bruch)	Houtjes Point; Table Bay.
Larus cirrocephalus Vieill.	Table Bay; Sierra Leone.
Larus fuscus Linn.	Sierra Leone.
**Larus dominicanus* Licht.	Table Bay; Walfish Bay.
**Sterna maxima* Bodd.	Subono; Man-of-War Bay; St. Paul de Loanda.
Sterna cantiaca Gm.	Table Bay; Houtjes Point; Walfish Bay; Sierra Leone.
Sterna caspia Pall.	St. Paul de Loanda.
**Sterna balænarum* (Strickl.)	Walfish Bay.
Thalassogeron chlororhynchus (Gm.)	Five miles west of Great Fish Bay.
**Majaqueus æquinoctialis* (Linn.)	Table Bay.
**Oceanites oceanicus* (Banks)	Nanna Kru.
**Oceanodroma leucorrhoa* (Vieill.)	6° 33′ N. 12° 4′ W.
**Procellaria pelagica* (Linn.)	About 30 miles north of the Equator.
**Spheniscus demersus* (Linn.)	Ichabo Island.
**Chalcopelia afra* (Linn.)	Nifu.
**Tympanistria tympanistria* (Temm.)	Nanna Kru; Sierra Leone; Sekondi.
**Turtur semitorquatus* (Rüpp.)	Nanna Kru; Settra Kru; Sekondi.
Turtur senegalensis (Linn.)	St. Paul de Loanda.
**Turturæna iriditorques* (Cass.)	Nanna Kru; Settra Kru.
**Vinago calva* (Temm.)	Settra Kru; Sekondi; Axim.
Numida meleagris Linn.	Annobon Island.
**Turnix lepurana* (Smith)	Nanna Kru; Bemfica; Morro da Cruz.
**Francolinus bicalcaratus* (Linn.)	Nanna Kru; Settra Kru; Man-of-War Bay.

PART II.

Notes on the more important Species.

CORVUS SCAPULATUS Daud.

Corvus scapulatus Reich. ii. p. 634.

a, b. ♂. St. Paul de Loanda. 14th Dec., 1910. (Nos. 86, 87.)

c. ♀. Subono. 10th Feb., 1911. (No. 462.)

Iris brown; bill and feet black.

Total length in the flesh 19 inches; expanse of wings 41 inches.

[This Crow is not abundant on the Kru coast. It feeds on insects and palm-fruit, and I found it the only bird which the natives refused to eat!—W. P. L.]

PHOLIDAUGES LEUCOGASTER (Gm.).

Cinnyricinclus leucogaster Reich. ii. p. 679.

a–f. ♂ ♀ ad. et ♂ imm. Nanna Kru. 1st–22nd Jan., 1911. (Nos. 220, 231, 235, 264, 311, 364.)

g, h. ♂ ♀. Settra Kru. 16th Jan., 1911. (Nos. 326, 366.)

i. ♂. Sierra Leone. 1st Feb., 1911. (No. 429.)

Iris yellow; bill black; feet black.

Total length 7 inches; expanse of wings 12 inches.

[This species is decidedly rare in Sierra Leone, but very common on the Liberian coast.—W. P. L.]

DICRURUS ASSIMILIS ATACTUS (Oberholser).

Dicrurus afer Reich. ii. p. 646.

Dicrurus adsimilis atactus Oberholser, Proc. U.S. Nat. Mus. xviii. p. 920 (1905).

Dicrurus modestus Hartl. Rev. Mag. Zool. 1849, p. 495; Chubb, in Johnston's Liberia, vol. ii. p. 806.

a. ♂. Sekondi. 23rd Dec., 1910. (No. 125.)

b. ♀. Nanna Kru. 22nd Jan., 1911. (No. 334.)

Iris red; bill black; feet black.

Total length in the flesh 10 inches; expanse of wings 15 inches.

There has been a great deal of confusion over the African Dicruridæ. Dr. Reichenow has "lumped" all the West Coast forms under *D. afer* Licht., which specific name Oberholser shews cannot stand at all! (Proc. U.S. Nat. Mus. xviii. pp. 919–920). I have carefully gone into the various points raised by Mr. Oberholser, and can bear him out in all his assertions.

The two birds which Mr. Lowe obtained in Liberia and on the Gold Coast are examples of *Dicrurus assimilis atactus* Oberholser, which form is confined to the N.W. coast of Africa from Liberia to the Niger. *Dicrurus assimilis atactus* differs from the Southern form *D. assimilis* in having the wing-quills darker, and the gloss on the entire plumage with more of a bluish than a greenish sheen, as is the case in the southern bird, though this latter character is not always constant. In other respects Mr. Oberholser's remarks on the species are borne out by the examples which I have examined.

In Mr. Chubb's list of birds found in Liberia he mentions a single example of *Dicrurus modestus* Hartl., which ought probably to be referred to *D. atactus*.

The former species, of which there are six specimens in the Natural History Museum from the type locality, is, in my opinion, confined to Princes Island in the Gulf of Guinea: it was described by Hartlaub, Rev. Mag. Zool. 1849, p. 495. All the examples which I have examined are large birds, with a wing measurement varying in males from 5·4 to 5½ inches; the females are slightly smaller. Moreover, the steel-blue gloss on the feathers of the head, and the heavy bill, help to distinguish the species from the closely allied form found on the mainland.

D. modestus must therefore be eradicated from the Liberian list and *D. a. atactus* added in its stead.

ORIOLUS LARVATUS BRACHYRHYNCHUS Swains.

Oriolus larvatus brachyrhynchus Reich. ii. p. 660.

a. ♂. Axim. 17th Feb., 1911. (No. 180.)

Iris red; bill reddish brown; feet blue.

Total length in the flesh 9¼ inches; expanse of wings 14 inches.

[This Oriole was not seen within three miles of Axim. It inhabits densely wooded places.—W. P. L.]

PYROMELANA AUREA (Gm.).

Pyromelana aurea Shelley, Ibis, 1886, p. 354, pl. ix. fig. 2.

Pyromelana aurea Reich. iii. p. 113.

a. ♀. St. Paul de Loanda. 24th March, 1911. (No. 632.)

As the female of this interesting species does not appear to have been described, I append a description of the adult bird which Mr. Lowe obtained at St. Paul de Loanda. There are three male examples in the British Museum, one of which was procured at the Quanza River, which is immediately south of St. Paul de Loanda.

Adult female. Resembles the adult female of *P. flammiceps*, but the black shaft-streaks of the upper surface are darker and more sharply defined. The ground-colour of the upper parts is more rufous throughout, very distinct on the crown of the head. In size the female appears to resemble the male, including the bill.

Iris brown; upper mandible horn-coloured, lower mandible white; feet flesh-coloured.

Total length in the flesh 5⅛ inches; expanse of wings 8 inches.

PYRENESTES OSTRINUS (Vieill.).

Pyrenestes ostrinus Reich. iii. p. 106.

a, b. ♀ imm. et ♀ juv. Sierra Leone. (Nos. 428, 443.)

Iris brown; bill black; feet dirty flesh-coloured.

Total length in the flesh 5½ inches; expanse of wings 8 inches.

The juvenile bird, which is in the olive-brown plumage, has two small wattles on either side of the gape.

NIGRITA BICOLOR (Hartl.).

Nigrita bicolor Reich. iii. p. 167.

a. ♀. Nanna Kru. 20th Jan., 1911. (No. 335.)
b. ♂. Axim. 17th Feb., 1911. (No. 483.)
c. ♂. Sekondi. 1st March, 1911. (No. 532.)

Iris red; bill black; feet brown.

Total length in the flesh 5 inches; expanse of wings 7 inches.

[The female obtained at Nanna Kru was nesting at the time of my visit. The nest was placed in a small bush three feet from the ground, and contained three white eggs, slightly incubated, measuring 0·60 × 0·45 inch. The nest was entirely surrounded by red ants, which did not in the least appear to disturb the occupant.—W. P. L.]

MIRAFRA OCCIDENTALIS Hartl.

Mirafra occidentalis Hartert, Nov. Zool. 1900, p. 45 (see remarks on *M. africana* and subspecies); id. Bull. B. O. C. xi. p. 64 (1901).

a, b. ♂. St. Paul de Loanda. 15th Dec., 1910, and 24th March, 1911. (Nos. 95, 646.)

Iris brown; upper mandible brownish, lower mandible white; feet flesh-coloured.

Total length in the flesh 7 inches; expanse of wings 11 inches; wing 3·5 inches.

Dr. Hartert kindly identified these two birds for me. *M. occidentalis* was described by Hartlaub from Gaboon, and in the Tring Museum there are specimens from Catumbela and Quissange in Benguela. The two examples which Mr. Lowe obtained at St. Paul de Loanda are the only representatives of the species in the Natural History Museum.

As will be seen from the measurements this is a very small race, and, as Dr. Hartert affirms, is probably confined to the coast.

[One of these birds was shot while singing in a tree; they were very common at St. Paul de Loanda.—W. P. L.]

PYRRHULAUDA VERTICALIS (Smith).

Pyrrhulauda verticalis Reich. iii. p. 368.

a, b. ♂ ♀ (?). St. Paul de Loanda. 24th March, 1911. (Nos. 630, 639.)

Iris brown; bill greyish horn-coloured; feet dirty flesh-coloured.

Total length in the flesh 5⅛ inches; expanse of wings 10 inches.

[This species was very common indeed; huge flocks were seen in Angola numbering over a thousand birds.—W. P. L.]

ANTHUS GOULDI Fraser.

Anthus leucophrys sordidus Reich. iii. p. 318 (part).

a–d. ♂ ♀. Nanna Kru. 1st–21st Jan., 1911. (Nos. 234, 239, 329, 356.)

e. ♀. Settra Kru. 15th Jan., 1911. (No. 371.)

f. (?). Subono. 10th Feb., 1911. (No. 459.)

g. ♂. King Will's Town. 1st Jan., 1911. (No. 252.)

h. ♂. Man-of-War Bay. 2nd Feb., 1911. (No. 447.)

Iris brown; bill black, lower mandible yellow; feet flesh-coloured.

Total length in the flesh 7 inches; expanse of wings 11–12 inches.

This is a small, dark form found on the coast—the type was described by Fraser from Cape Palmas; the birds which Mr. Lowe procured from Liberia and Sierra Leone are all very constant in colour.

The specimen from Sierra Leone (*h*) has a longer bill than the other examples obtained, and the measurements are slightly larger throughout.

Anthus gouldi has been omitted from Mr. Chubb's List of Birds found in Liberia.

ANTHOTHREPTES TEPHROLÆMA (Jard. & Fras.).

Anthreptes tephrolæma Reich. iii. p. 445.

a. ♂. Settra Kru. 14th Jan., 1911. (No. 321.)

Iris brown; upper mandible black, lower mandible brownish; feet bluish.

This species may be at once recognised by its short "stumpy" bill.

Dr. Reichenow gives the range of the bird "from the Niger to Angola"—its place being taken further north by *A. rectirostris* (Shaw), which possesses a much longer and narrower bill than *A. tephrolæma*. The single specimen obtained on the Liberian coast by Mr. Lowe undoubtedly belongs to the latter species, and I cannot account for its occurrence so far north.

[The bird was feeding on berries.—W. P. L.]

CINNYRIS FULIGINOSUS (Shaw).

Chalcomitra fuliginosa Reich. iii. p. 457.

a–h. ♂ ♀. Nanna Kru. 3rd–20th Jan., 1911. (Nos. 219, 225, 251, 257, 270, 297, 300, 361.)

i, k. ♂. Subono. 10th Feb. and 4th March, 1911. (Nos. 458, 564.)

Iris brown; bill and feet black.

Total length in the flesh 6 inches; expanse 8½ inches.

[This is a common species in suitable localities in Liberia. —W. P. L.]

CINNYRIS ADELBERTI Gerv.

Chalcomitra adelberti Reich. iii. p. 456.

a–d. ♂ ad. et imm. Nanna Kru. 3rd–20th Jan., 1911. (Nos. 218, 228, 257, 354.)

Iris brown; bill and feet black.

Total length in the flesh 4½ inches; expanse of wings 7 inches.

[This species is not quite so plentiful as *C. fuliginosa* on the Kru coast.—W. P. L.]

CINNYRIS VERTICALIS (Lath.).

Chalcomitra verticalis Reich. iii. p. 454.

a, b. ♂. Nanna Kru. 3rd & 22nd Jan., 1911. (Nos. 217, 340.)

c. ♀ imm. Subono. 4th March–Feo., 1911. (No. 566.)

d–h. ♂ ♀ ad. et imm. 13th–27th Feb., 1911. (Nos. 464, 470, 511, 515, 520.)

Iris brown; bill and feet black.

Total length in the flesh 6 inches; expanse of wings 8 inches.

[One of the rarer species found along the Kru coast.—W. P. L.]

CINNYRIS KRUENSIS Bannerman.

Cinnyris kruensis Bannerman, Bull. B. O. C. xxix. p. 23 (1911).

a, b. ♀ et ♂ imm. Sekondi. 27th Dec., 1910. (Nos. 157 type and 166.)

c, d. ♂. Nanna Kru. 1st & 20th Jan., 1911. (Nos. 341 type and 272.)

e. ♀ imm. Axim. 27th Feb., 1911. (No. 519.)

This species is closely allied to *C. batesi* Grant, from Camaroon, but, as has already been pointed out in the original description, is distinguished by its smaller size, shorter bill, and more yellow under parts, besides having the feathers of the tail similar in colour to the back.

Expanse of wings 139 mm.; wing 45 mm.; tail 25 mm.; bill (exposed part of culmen) 13 mm.; tarsus 12 mm.

PHOLIDORNIS RUSHIÆ USSHERI Reich.

Pholidornis rushiæ ussheri Hartert, J. f. O. 1907, p. 621.

Pholidornis rushiæ Reich. iii. p. 529.

a, b. ♀ juv. Axim. 23rd Feb., 1911. (Nos. 503, 505.)

The difference between *P. rushiæ* Cass. and its three subspecies have been most clearly shown by Dr. Hartert in his paper cited above. The two immature birds which Mr. Lowe shot at Axim are very young examples and differ from the adult in the following points:—

The entire upper parts are much darker brown. The broad light buff margins to the feathers of the head and lores, which give to the adult bird such a mottled appearance, are replaced in the young by faint light brown edges to the feathers, which are almost uniform dark brown in colour. The flanks, abdomen, and rump are of a much duller yellow than in the adult, and the grey feathers of the throat are faintly streaked with brown, not boldly striated with broad dark brown shaft-streaks as in the fully adult bird.

[These two examples were shot close to a stream, in the act of being fed by another bird.—W. P. L.]

ZOSTEROPS GRISEIVIRESCENS Boc.

Zosterops griseovirescens Reich. iii. p. 437.

a–f. ♂ ♀. Annobon Island. 18th Dec., 1910. (Nos. 110, 113, 114, 115, 116, 117.)

Iris brown; bill bluish horn-coloured; feet plumbeous.

Total length in the flesh 5 inches; expanse of wings 7¾ inches.

This White-eye is peculiar to the island of Annobon. Mr. Lowe tells me that it was exceedingly plentiful there. Specimen 110 was nesting at the time of his visit.

SYLVIA HORTENSIS Linn.

Sylvia simplex Reich. iii. p. 649.

a, b. ♂. Sierra Leone. 7th & 9th March, 1911. (Nos. 603, 573.)

Iris brown; upper mandible brown, lower mandible lighter; feet bluish.

Total length in the flesh 6 inches; expanse of wings 9½ inches.

SYLVIELLA HARDYI Bannerman.

Sylviella flaviventris Sharpe, Cat. Birds, vol. vii. p. 157 (part).

Sylviella hardyi Bannerman, Bull. B. O. C. xxix. p. 23 (1911).

a. Adult. Sierra Leone. 8th March, 1911. (No. 587.)

In the British Museum there is an immature example of this species from Abrobonko, obtained by Mr. Ussher, which has been wrongly identified as *S. flaviventris* Sharpe.

A full description of this new bird has been given in the 'Bulletin of the British Ornithologists' Club' (*vide supra*).

CAMAROPTERA CHRYSOCNEMIS Licht.

Camaroptera griseoviridis Reich. iii. p. 616.

a. ♂. Settra Kru. 16th Jan., 1911. (No. 322.)

Iris reddish brown; eyelids brown; bill black; feet flesh-coloured.

Total length in the flesh 5 inches; expanse of wings 6½ inches.

This species is not included in Mr. Chubb's List of Birds found in Liberia.

TURDUS PELIOS Bonap.

Turdus pelios Reich. iii. p. 690.

a, *b*. ♂. Sierra Leone. 3rd Feb. and 11th March, 1911. (Nos. 437 & 613.)

Iris reddish brown; bill yellow; feet flesh-coloured.

Total length in the flesh 9 inches; expanse of wings 13¼ inches.

[This bird was found in dense bush, and my attention was generally called to it by its habit of turning over dead leaves whilst feeding. The stomach contained insects. It seems to be uncommon.—W. P. L.]

ALETHE DIADEMATA (Temm.).

Alethe diademata Reich. iii. p. 748.

a. (?) imm. Nanna Kru. 25th Jan., 1911. (No. 392.)

Iris brown; upper mandible black; feet bluish.

[This was the only individual seen. It was shot in very dense bush: the stomach contained insects.—W. P. L.]

TURDINUS PUVELI Salvad.

Turdinus puveli Reich. iii. p. 739.

a. ♀. Sierra Leone. 7th March, 1911. (No. 610.)

Iris light brown; bill, upper mandible black, lower mandible bluish white; feet pinkish flesh-coloured.

Total length in the flesh 7¼ inches; expanse of wings 9 inches.

This is a rare species of which there is only one example in the Natural History Museum. It was also procured in Sierra Leone, by Mr. Robin Kemp.

Dr. Reichenow gives its habitat as Portuguese Guinea and Kassine Island.

ALSEONAX COMITATA (Cass.).

Pedilorhynchus comitatus Reich. ii. p. 461.

a. ♂. Axim. 27th Feb., 1911. (No. 514.)

Iris brown; bill and feet black.

Total length in the flesh 5¾ inches; expanse of wings 8½ inches.

This example is an adult in fresh plumage, and shews more white on the under parts than those in the series in the Natural History Museum, which have a distinct buff tinge on the throat and belly.

MUSCICAPA GRISOLA Linn.

Muscicapa grisola Reich. ii. p. 449.

a. ♂ (?). Nanna Kru. 20th Jan., 1911. (No. 355.)

b. ♂. Axim. 13th Feb., 1911. (No. 466.)

Iris brown; bill black, base of lower mandible yellow; feet black.

Total length in the flesh 6 inches; expanse of wings 10 inches.

[These birds were rather rare, very few being seen on the Liberian coast.—W. P. L.]

BIAS MUSICUS (Vieill.).

Bias musicus Reich. ii. p. 469.

a. ♀. Sekondi. 25th Dec., 1910. (No. 154.)

b, c. ♂ imm. et ♀ ad. Sierra Leone. 31st Jan. and 8th March, 1911. (Nos. 418, 569.)

d. ♂. Settra Kru. 15th Jan., 1911. (No. 324.)

e. ♂. Nanna Kru. 20th Jan., 1911. (No. 320.)

f. ♂. Subono. 10th Feb., 1911. (No. 455.)

Iris yellow; bill black; feet yellow.

Total length in the flesh 6½ inches; expanse of wings 10 inches.

[This striking bird is tolerably common on the Kru coast, but more plentiful at Sierra Leone.—W. P. L.]

Elminia longicauda (Swains.).

Elminia longicauda Reich. ii. p. 496.

a–c. ♂ ♀. Sierra Leone. 31st Jan.–10th March, 1911. (Nos. 445, 594, 611.)

Iris brown; bill black; feet brown.

Total length in the flesh 7 inches; expanse of wings 8½ inches.

[This Flycatcher, unlike most of its genus, does not wait patiently on its perch until an insect flies within range, but hunts diligently along a bough, driving the insects before it until they take to flight, when they are immediately seized and devoured.—W. P. L.]

Hirundo rustica Linn.

Hirundo rustica Reich. ii. p. 406.

a, b. ♀. Nanna Kru. 3rd & 21st Jan., 1911. (Nos. 223, 336.)

c. ♂. Axim. 23rd Feb., 1911. (No. 493.)

Iris brown; bill black; feet dark brown.

Total length in the flesh 8 inches; expanse of wings 12½ inches.

[Swallows were common—doubtless on migration.—W. P. L.]

Hirundo griseopyga Sundev.

Hirundo griseopyga Reich. ii. p. 403.

a, b. ♂ ♀. Nanna Kru. 5th & 8th Jan., 1911. (Nos. 265, 298.)

Iris brown; bill black; feet brownish.

Total length in the flesh 6¼ inches; expanse of wings 9 inches.

H. griseopyga has not hitherto been recorded from Liberia.

[This species is not uncommon in Liberia.—W. P. L.]

Hirundo leucosoma Swains.

Hirundo eucosoma Reich. ii. p. 404.

a. ♀. Axim. 22nd Feb., 1911. (No. 502.)

This is the only example of its species which Mr. Lowe procured, and hence I am somewhat unwillingly compelled to unite it with *H. leucosoma* Swains. In the Natural History Museum there are six specimens from the Gold Coast, all of which have the gloss on the feathers of a bluish tinge, whereas the gloss on the present example is decidedly green. Nothing is so deceptive as the sheen on the feathers in birds with a glossy plumage, and it has been often pointed out that the colour may change from various causes; but *H. leucosoma* has the throat *white*, whereas in the bird with the green gloss it is strongly washed with rufous which reaches on to the breast. Hence, when a large series is procured it may prove to be separable, and both the rufous on the throat and the green sheen on the upper parts to be constant characters.

PSALIDOPROCNE OBSCURA (Temm.).

Psalidoprocne obscura Reich. ii. p. 427.

a–c. ♂ ♀. Sekondi. 22nd & 23rd Dec., 1911. (Nos. 136, 146, 147.)

d. ♂. Nanna Kru. 10th Jan., 1911. (No. 291.)

e. ♂. Sierra Leone. 31st Jan., 1911. (No. 444).

Iris dark brown; bill and feet black.

Total length in the flesh 4⅞ inches; expanse of wings 10 inches.

Hitherto unrecorded from Liberia.

CAMPOTHERA MACULOSA (Valenc.).

Dendromus maculosus Reich. ii. p. 170.

a. ♂. Sierra Leone. 10th March, 1911. (No. 604.)

Iris brown; upper mandible black, lower mandible bluish; feet greenish.

Total length in the flesh 8¼ inches; expanse 13 inches.

[I found Woodpeckers scarce on the Liberian coast, and observed only two species. This form seemed quite local and was found in a small forest clearing, where a number of dead trees were standing, about three or four miles from the coast.—W. P. L.]

MESOPICUS PŒOCEPHALUS (Swains.).

Mesopicus goertæ poicephalus Reich. ii. p. 186.

a. ♀ imm. Sierra Leone. 10th March, 1911. (No. 589.)

Iris brown; upper mandible black, lower mandible bluish horn-coloured; feet grey.

Total length in the flesh $8\frac{1}{4}$ inches; expanse of wings 14 inches.

I have been unable to determine this bird to my entire satisfaction, although from the locality it should certainly be *M. pœocephalus*. The specimen, which Mr. Lowe shot in Sierra Leone, is in fresh plumage but is immature. The upper parts are olive-brown, not golden olive as in the adult; the head, which is grey, has a few pink feathers interspersed over the crown and occiput, while the feathers of the rump are salmon-pink in contrast to the bright scarlet rump in the examples of *M. pœocephalus* which I have examined. The entire under parts are greenish grey, narrowly barred with light brown on the flanks. The only immature example in the National Collection shews considerably more golden olive on the back than is present in the Sierra Leone bird.

Mr. Lowe ascertained the sex of this example to be a female, although assuming the scarlet head of the male.

BARBATULA CHRYSOPYGA Shelley.

Barbatula chrysopyga Reich. ii. p. 148.

a. ♀ (?). Sekondi. 23rd Dec., 1910. (No. 158.)
b. ♂. Nanna Kru. 7th Jan., 1911. (No. 281.)

Iris brown; bill and feet black.

Total length in the flesh $3\frac{3}{4}$ inches; expanse of wings 6 inches.

This Barbet has been omitted by Mr. Chubb from the List of Liberian Birds.

TURACUS PERSA (Linn.).

Turacus persa Reich. ii. p. 54.

a, b. ♂. Sekondi. 23rd Dec., 1910. (Nos. 179, 180.)
c. ♂. Axim. 17th Feb., 1911. (No. 482.)

Iris brown, eyelids red; bill red; feet black.

Total length in the flesh $17\frac{1}{2}$ inches; expanse of wings 19 inches.

[This Turaco is known to the natives as the "Clock bird," from its remarkable habit of calling every hour. I have "timed" the bird several times and found it marvellously correct, though of course not to be relied upon; the natives, however, go largely by it.—W. P. L.]

COCCYSTES GLANDARIUS (Linn.).

Coccystes glandarius Reich. ii. p. 81.

a. ♀ imm. Nifu. 3rd Dec., 1910. (No. 196.)

b, c. ♂. Axim. 15th Feb., 1911. (Nos. 475, 476.)

Iris brown, eyelids reddish; bill and under part of lower mandible flesh-coloured near base; feet bluish.

Total length in the flesh (adult) 16 inches, (imm.) 15½ inches; expanse (adult) 23 inches, (imm.) 22 inches.

No immature example of this Cuckoo is mentioned in the List of the Birds of Liberia by Mr. Chubb.

CEUTHMOCHARES FLAVIROSTRIS (Swains.).

Ceuthmochares flavirostris Reich. ii. p. 72.

a. ♂. Sierra Leone.

[The example was obtained in very thick creepers, and was the only one seen. It was extremely shy.—W. P. L.]

CHRYSOCOCCYX CUPREUS (Bodd.).

Chrysococcyx cupreus Reich. ii. p. 94.

a. ♀. Subono. 10th Feb., 1911. (No. 461.)

b. ♂. Axim. 25th Feb., 1911. (No. 551.)

Iris and eyelid red; upper mandible black, lower mandible bluish at the base; feet bluish-black.

[This Cuckoo is common; it inhabits swampy places, and is occasionally seen in the cassava.—W. P. L.]

CHRYSOCOCCYX KLAASI (Steph.).

Chrysococcyx klaasi Reich. ii. p. 98.

a, b. ♀ ad. et ♂ imm. Nanna Kru. 13th & 20th Jan., 1911. (Nos. 303, 332.)

c, d. ♂. Sekondi. 1st March, 1911. (Nos. 533, 534.)

Iris brown, eyelids green; bill dull green, tip black; feet greenish.

Total length in the flesh 7 inches; expanse of wings 10 inches.

[*C. klaasi* was plentiful and found in similar localities to *C. cupreus*. A small black Cuckoo and also a large and very noisy bird with a yellow patch in the wings, closely allied to *C. serratus*, occur at Nanna Kru, but though shot they were not picked up.—W. P. L.]

CHRYSOCOCCYX SMARAGDINEUS (Swains.).

Chalcites smaragdineus Swains. Birds of Africa, p. 191 (1837).

Metallococcyx smaragdineus Reich. ii. p. 101.

a. ♂. Nanna Kru. 7th Jan., 1911. (No. 285.)

b. [♂.] Axim. 25th Feb., 1911. (No. 540.)

Iris brown; bill green; feet blue.

Total length in the flesh 9½ inches; expanse of wings 13 inches.

It has hitherto been supposed by many ornithologists that there was only a single species of the Emerald Cuckoo, which has been universally named *C. smaragdineus*. There is, however, no doubt that there are two forms of this beautiful Cuckoo: *C. smaragdineus*, from West Africa, which was described by Swainson from Gambia, and *C. smaragdineus intermedius* Hartlaub, Orn. W. Afric. p. 191 (1857) (founded on Verreaux's description of *C. smaragdineus* part. Rev. Mag. Zool. 1851, p. 260).

It appears that Verreaux was the first to notice the fact, as he remarks, "La seule différence qui existe entre cet oiseau du Gabon et celui du Sénégal consiste dans la longueur de la queue, qui est plus courte dans le premier." His remarks were quoted by Hartlaub, and on this was founded the name *intermedius*.

By referring to Swainson's original description of *C. smaragdineus*, it will be seen that he mentions "the under tail-coverts in *this* are yellow and unspotted, while in *that* (the Cape form) they are white with two green bands on each feather."

The series which I have examined in the British Museum from the West Coast, South Africa, and Abyssinia, clearly shew several important differences. As a great number of examples in the Museum series are not absolutely adult (having traces of the barring on the chest, although they may have already lost all traces of the bars on the under wing-coverts—so conspicuous a feature in young birds), I have eliminated these in working out the characters; only skins of adult birds of which the origin is unquestioned being taken into account. The most noticeable point is that the tail in *C. smaragdineus* is considerably longer and the rectrices more graduated than in *C. smaragdineus intermedius*.

From the following Table it will be seen that the tail in adult South African birds is much shorter than in those from the North-West and North-East of Africa.

The measurement of the tail is taken from between the base of the middle tail-feathers to the tip. In each case I have added the authority for the locality in brackets.

C. smaragdineus.	Tail. mm.	*C. s. intermedius.*	Tail. mm.
Gold Coast (Kirby)	133	Zoutpansberg District (C. Grant)	91
Liberia (Lowe)	117	Do. do. (C. Grant)	92
Axim (Lowe)..............	110	Zululand (C. Grant)	95
Sierra Leone (Chamley)	104	Danger River (Ansell)	92
Charada, Kaffa Abyssinia (Zaphiro)	122		
Do. do. do. (Zaphiro)	136		
Djima, Abyssinia (Zaphiro)..	135		
Charada Forest, Abyssinia (Zaphiro)	120		
Do. do. do. (Zaphiro)	115		

Another important difference, already noticed by Swainson, is the fact that in *C. smaragdineus* the under tail-coverts become bright yellow, occasionally banded with emerald green; in the case of Mr. Lowe's two specimens the under tail-feathers have only one or two diminutive streaks of emerald green.

Examples of *C. s. intermedius never* attain yellow under tail-coverts, which are *white* banded with emerald green.

Skins of the Emerald Cuckoo are so liable to fade that in the series in the National Collection it is extremely hard to see whether certain examples originally had the under tail-coverts yellow or white. In every recently-killed specimen from the N.W. Coast these feathers are bright yellow, as in the breast, whereas birds collected at about the same time in S. Africa shew no trace of yellow at all on the under tail-coverts. This character will doubtless prove to be constant; the emerald green bands on the under tail-feathers appear to vary individually.

A third character which will be noticed on examination of a series of both forms, is that the scale-like feathers on the upper parts of *C. smaragdineus* are noticeably larger than in *C. s. intermedius*.

It will be noticed that Mr. Lowe obtained his two examples in Liberia and the Gold Coast at a season when *C. intermedius* has returned from the north in order to spend the southern summer (October to March) in South Africa: *cf.* Stark & Sclater, Faun. S. Africa, vol. iii. p. 186.

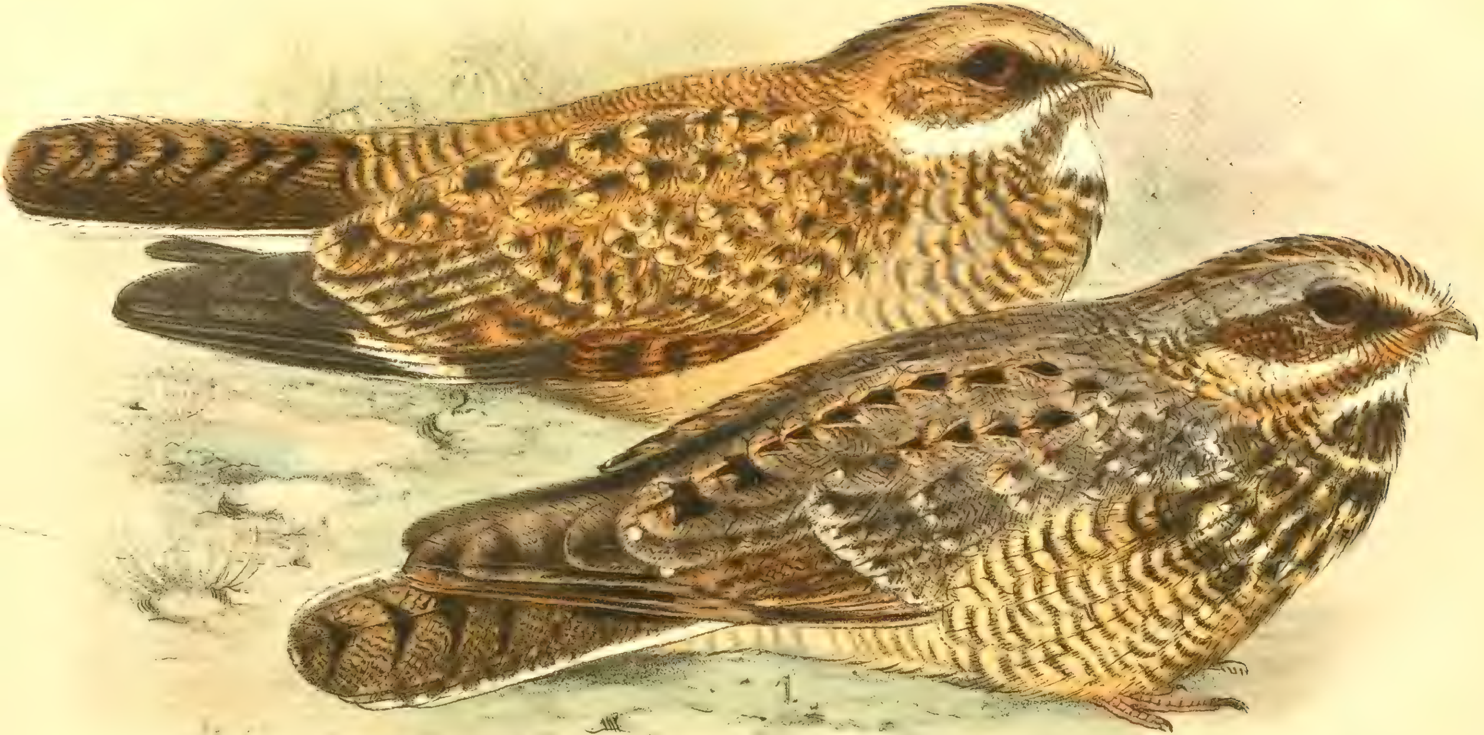
C. smaragdineus intermedius will probably be found to migrate on the East Coast as far north as Uganda, although many more data are necessary before its exact range can be determined.

The credit for noticing the difference between the Northern and Southern form is entirely due to Mr. Lowe, who remarked the yellow under tail-coverts as soon as he had shot the first example, and brought the interesting fact to my notice.

C. smaragdineus is not included in Mr. Chubb's List of the Birds found in Liberia, and must now be added on Mr. Lowe's authority.

[This handsome Cuckoo appears to be rare in Liberia and the Gold Coast. It is seldom seen, and I found it to be very retiring. The male sings from the top of a lofty tree, as in South Africa.—W. P. L.]

NOTE.—Dr. Reichenow has introduced a new generic name, *Metallococcyx*, for this species (Orn. Monatsb. 1896, p. 51). However, careful investigation shews that *C. smaragdineus* is absolutely the type of Boie's genus *Chrysococcyx*. Boie (Isis, 1826, p. 977) proposed *Chrysococcyx* for *Cuculus cupreus* Lath. By monotypy, therefore, this must be accepted



H. Gronvold de

absolutely as the type. In the Cat. Birds Brit. Mus. xix. p. 280, the type of *Chrysococcyx* is given as *C. cupreus*; but in this case *C. cupreus* of Boddaert is intended. But Latham's *C. cupreus* (Suppl. Index Ornithol. ii. p. xxix, 1802) is the same as Shaw's *C. cupreus* (Mus. Lever. p. 157, 1792), which is the bird named *C. smaragdineus* by Swainson (Birds W. Africa, ii. p. 191, 1837), and not Boddaert's species.

C. cupreus of Boddaert belongs to the Golden Cuckoo.

C. cupreus of Latham, and subsequently of Shaw, undoubtedly refers to the Emerald Cuckoo which was named *C. smaragdineus* by Swainson.

TACHORNIS PARVUS BRACHYPTERUS Reich.

Tachornis parvus brachypterus Reich. ii. p. 386.

a. ♂. Nanna Kru. 6th Jan., 1911. (No. 295.)

Iris brown; bill black; feet dirty flesh-coloured.

Total length in the flesh 6$\frac{3}{4}$ inches; expanse of wing 11$\frac{3}{4}$ inches.

[This bird was decidedly rare, about half a dozen were seen, on the Kru coast. At Sierra Leone, on the other hand, it was very common and was discovered nesting.—W. P. L.]

CAPRIMULGUS ACCRÆ Shelley. (Plate IV. fig. 1.)

Caprimulgus accræ Shelley, Ibis, 1875, p. 379; Alexander, Bull. B. O. C. xxi. p. 90 (1908).

Caprimulgus fulviventris Hartert, Cat. Birds Brit. Mus. xvi. p. 565 (1892) (part.).

Caprimulgus natalensis Hartert, Das Tierreich (Caprimulgidæ), 1897, p. 45; Hartert, Cat. Birds Brit. Mus. xvi. p. 564 (1892) (part.).

Caprimulgus natalensis fulviventris Hartert, Das Tierreich (Caprimulgidæ), 1897, p. 45, part.; Reich. ii. p. 367, part.

a, b. ♂. Nanna Kru. 4th & 12th Jan., 1911. (Nos. 240, 312.)

Iris brown; bill black, becoming yellowish brown at the base; feet flesh-coloured.

Total length in the flesh 9$\frac{1}{4}$ inches; expanse of wings 18–20 inches.

Considerable confusion has taken place in the past between *C. natalensis* (Smith), *C. fulviventris* Hart., and *C. accræ*

Shelley. The addition to the National Collection of Mr. Lowe's two examples from Liberia, which agree exactly with the type of *C. accræ* Shelley, throws considerable light on the subject, and bears out the late Mr. Boyd Alexander's theory that *C. accræ* and *C. fulviventris* are perfectly distinct species, and that both may be separated from *C. natalensis*. In this opinion Dr. Hartert now entirely agrees with me, and I should here like to express my thanks to him for his kindness in placing the material in the Tring Museum at my disposal.

C. accræ differs from *C. fulviventris* in the following points, which are mostly alluded to in the original descriptions of the species.

C. accræ. (Plate IV. fig. 1.)	*C. fulviventris.* (Plate IV. fig. 2.)
Entire upper parts ashy grey (much greyer than *C. natalensis*).	Entire upper parts tawny brown.
The sides of the face, throat, and breast heavily marked with dark brown (more pronounced in the two birds from Liberia than in those from the Gold Coast).	Much less heavily marked on the under parts.
The abdomen and sides of the the flanks, which are tawny buff, are heavily barred with brown.	The bars on the abdomen and and flanks are entirely absent.
An ill-defined narrow white malar stripe.	Malar stripe broad and pronounced.
*As in *C. natalensis* four primaries have a broad white patch.	*White wing patch covers five primaries, though less defined on the fifth.
The extremities of the primaries are obscurely marked with light greyish-brown.	No such markings on the primaries.
The white on the two outer tail-feathers extends 55 mm. from the tip.	Less white on the two outer tail-feathers, extending 43 mm. from the tip.

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* This is a somewhat variable character, and until a large series of *C. fulviventris* is available cannot be considered of much importance, although the large series of *C. natalensis* which I have examined is constant in this respect.

C. accræ may at once be distinguished from *C. natalensis* by its much greyer coloration.

Mr. Boyd Alexander has described a new species from Gaboon, *C. gabonensis*, which in my opinion is closely allied to *C. fulviventris*. When additional specimens are forthcoming from the country lying between Gaboon and north Angola the two species will possibly prove to be synonymous; until then, however, I prefer to keep them distinct.

I do not agree with Alexander that *C. natalensis* ranges from Natal to the Baro river, Sudan. At present only a single example is recorded from the latter locality; but I believe that when more material is available the bird will prove to be distinct.

Mr. Chubb does not include any Nightjar in his list. *C. accræ* must therefore be added to the Birds of Liberia.

[I found this bird among grassy slopes sitting on dark stony ground.—W. P. L.]

Scotornis climacurus (Vieill.).

Scotornis climacurus Reich. ii. p. 368.

a, c. ♂ ♀. Nanna Kru. 1st–9th Jan., 1911. (Nos. 241, 301, 308.)

Iris brown, eyelid yellow; bill, base yellow, tip black; feet dull flesh-coloured.

Total length in the flesh (♂) 13½ inches; expanse of wings 17 inches.

[This is apparently the most common of the two species of the genus; it is found in cassava and along the edge of wooded swamps.—W. P. L.]

Eurystomus afer (Lath.).

a. ♀. Nifu. 30th Dec., 1910. (No. 205.)

b–e. ♂ ♀. Nanna Kru. 1st–25th Jan., 1911. (Nos. 261, 342, 343, no number.)

f. ♀. King Will's Town. 1st Jan., 1911. (No. 260.)

g. ♂. Axim. 19th Feb., 1911. (No. 500.)

Iris brown; bill yellow; feet dirty yellow.

Total length in the flesh 9¼–10½ inches; expanse of wings 23 inches.

[This is the commonest bird on the Coast. Its habits are similar to those of a Flycatcher—constantly darting out after an insect and returning to its original perch to repeat the process.—W. P. L.]

CORACIAS CAUDATUS Linn.

Coracias caudata Reich. ii. p. 223.

a. ♂ ? imm. St. Paul de Loanda. 24th March, 1911. (No. 635.)

Iris brown ; bill black ; feet dull yellow.

Total length in the flesh 12½ inches ; expanse of wings 22 inches.

Angola appears to be the northern limit of the range of this species on the West Coast of Africa, whereas on the East Coast it extends as far north as Shoa.

HALCYON SENEGALENSIS (Linn.).

Halcyon senegalensis Reich. ii. p. 282.

a. ♀. Sekondi. 23rd Dec., 1910. (No. 161.)

b, *c*. ♂. Nanna Kru. 1st Jan., 1911. (Nos. 229, 249.)

Iris brown ; upper mandible red, lower mandible black : feet reddish black.

Total length in the flesh 9½ inches ; expanse of wings 14 inches.

[A very common species. It lives chiefly on insects, and inhabits dry places away from water.—W. P. L.]

PŒOCEPHALUS RUEPPELLI Gray.

Pœocephalus rüppelli Reich. ii. p. 14.

a. ♀. Bemfica, Morro da Cruz. 15th Dec., 1910. (No. 109.)

b. ♂. St. Paul de Loanda. 24th March, 1911. (No. 638.)

Iris bright reddish yellow ; bill and feet black.

Total length in the flesh 9 inches ; expanse of wings 17 inches.

[Rüppell's Parrot is found in very dry country, frequenting dried-up water courses. The female is easily distinguished by its bright blue rump from the more soberly coloured male, dull blackish green taking the place of the blue on the rump.—W. P. L.]

MILVUS ÆGYPTIUS (Gm.).

Milvus ægyptius Reich. i. p. 609.

a. ♂. Nifu. 30th Dec., 1910. (No. 206.)

Iris brown; feet yellow; bill yellowish black, cere yellow.

[This species appeared to be quite common along the coast; it was frequently seen around the ship picking up waste food and occasionally bodies of the birds which I had skinned. The natives esteem it a great delicacy and I often shot it for my carriers: it has a curious habit of coming immediately a grass fire is started, probably to pick up any small creatures such as locusts that may have been killed; at such times specimens are easily shot. I saw several nests placed high up in inaccessible trees.—W. P. L.]

BUTEO AUGURALIS Salvad.

Buteo auguralis Reich. i. p. 593.

a. ♂. Sierra Leone. 9th March, 1911. (No. 622.)

Iris brown; bill black, base bluish; cere yellow; feet yellow.

Total length in the flesh 18½ inches; expanse of wings 45 inches.

This example of the West Coast form of *B. augur* is immature. The small size in comparison with *B. augur* is at once noticeable, the wing measuring 13·7 inches, while that of an immature male of *B. augur* measures 15·4 inches.

[In addition to one procured at Sierra Leone I saw a pair of these Buzzards at Nanna Kru; but they were more plentiful near Axim.—W. P. L.]

The occurrence of this species in Liberia has not hitherto been recorded.

CERCHNEIS sp. inc.

a. ♀ imm. St. Paul de Loanda. 15th Dec., 1910. (No. 108.)

Iris black, cere greenish yellow; bill bluish horn-coloured; feet yellow. The stomach contained locusts.

This example in immature plumage is a dark bird, very similar to *C. saturata* Blyth, from N.E. Africa.

BAZA CUCULOIDES (Swains.).

Baza cuculoides Reich. i. p. 618.

a. ♂ imm. Nanna Kru. 22nd Jan., 1911. (No. 387.)

Iris yellow: bill black, base of lower mandible bluish; cere greenish yellow; feet yellow.

Total length in the flesh 15 inches; expanse of wings 34 inches.

[This bird is tolerably common but extremely shy.—W. P. L.]

POLYBOROIDES TYPICUS Smith.

Polyboroides typicus Reich. i. p. 531.

a. ♀ imm. Sierra Leone. 11th March, 1911. (No. 617.)

Iris light brown; bill black; feet pale yellow.

Total length in the flesh 23 inches; expanse of wings 48 inches.

This specimen, which is in moult, is in a most interesting immature stage, just beginning to assume the adult plumage; a few of the grey feathers on the scapulars are making their appearance, while the black and white feathers of the rump have already appeared. The tail, which is light brown banded with dark brown, is similar to that of the very young bird, with the exception of the two central tail-feathers which are 5¾ inches in length (2 inches of which is sheath), the new feathers being black tipped with white, as in the adult plumage.

[The stomach of this specimen contained large white grubs. Two birds were seen on the Gold Coast but not procured.—W. P. L.]

GYPOHIERAX ANGOLENSIS (Gm.).

Gypohierax angolensis Reich. i. p. 603.

a. ♀ (?) imm. Nanna Kru. 10th Jan., 1911. (No. 304.)

b, c. ♀ ad. et ♂ imm. Settra Kru. 16th Jan., 1911. (Nos. 384, 385.)

d. ♂. Axim. 17th Feb., 1911. (No. 484.)

Iris (ad.) yellow, (imm.) light brown, bare skin orange; bill greenish horn-coloured; feet pinkish yellow.

Ad. ♀. Total length 25¼ inches; expanse 58½ inches;

weight 4 lbs. *Ad.* ♂. Total length 23 inches; expanse 56 inches.

The weight of an immature male was 3 lbs.

Two of these specimens, a male and female, are in the white plumage of the adult; the other two, also male and female, are immature, and are of a dirty brown colour throughout.

[This Vulture was quite common on the Liberian and Gold Coasts: a pair were nesting in a dead tree, the nest was bulky and formed of sticks; but unfortunately the trunk of the tree was covered with large spikes, which made it inaccessible even to a native.—W. P. L.]

Neophron monachus (Temm.).

Neophron monachus Reich. i. p. 522.

a. ♀ imm. Sekondi. 22nd Dec., 1910. (No. 181.)

Iris brown; bill and bare part of head bluish; feet bluish.

Total length in the flesh 26 inches; expanse of wings 5 ft.; weight 4 lbs.

This specimen, which is in immature plumage, differs from the adult in having the feathered part of the nape, neck, and lower part of the throat brown instead of dirty white, the brown feathers extending over the crown almost to the base of the bill. The ruff in this example is almost white, as in the adult; very young birds, according to the Catalogue of Birds, vol. i., have the ruff brown. I conclude, therefore, that this species assumes the white ruff before the neck and thighs become white.

[Found throughout the Gold Coast and Sierra Leone but *not* in Liberia. One was nesting in a cotton-wood tree in Sierra Leone, the nest being placed about thirty feet from the ground.—W. P. L.]

Phœnicopterus minor Geoffr.

Phœnicopterus minor Reich. i. p. 352.

a–c. ♂ ad. et imm. Walfish Bay. 8th Dec., 1910–1st April, 1911. (Nos. 75, 654, 662.)

Iris reddish yellow; bill reddish; feet red.

Total length in the flesh 31 inches; expanse of wings 52 inches; weight 4 lbs.

[As we left the harbour of Angra Pequena on the morning of December 3rd several small flocks of *P. minor* were walking or wading along the beach, whilst others were standing at the foot of some rocks. This species may be safely said to be the Common Flamingo of the South-West Coast of Africa. Mr. W. L. Sclater, in his 'Fauna of South Africa,' on the authority of Andersson states that it is "rare at Walfish Bay." As a matter of fact I found *P. minor* on the lagoons by thousands, but I was never fortunate enough to see a single specimen of *P. roseus*. Mr. Hutchinson, the magistrate at Walfish, who has resided there for some years, informed me that he had never shot an example of *P. roseus*, whilst he had a large series of *P. minor*. On the Liberian coast no Flamingos were seen, but *P. roseus* occurs at Sierra Leone. Only a few individuals were observed, but I was told that they were formerly very abundant.—W. P. L.]

SULA CAPENSIS (Licht.).

Sula capensis Reich. i. p. 84.

a, b. ♀. Off Hogie Point (? Houtjes Pt.), S. Africa. 25th Nov., 1910. (Nos. 18, 21.)

c. ♂ imm. Walfish Bay. 1st April, 1911. (No. 660.)

Adult. Iris white, eyelids blue; feet black, stripes greenish blue; weight 7 lbs.

Imm. Iris yellowish grey; bill greyish horn-coloured; eyelids bluish; feet grey, stripes bluish.

Total length in the flesh 34 inches; expanse of wings 63 inches.

[The Cape Gannet was very abundant; in feeding habits it is similar to our own bird. It struck me as curious that on our voyage northwards—we left Table Bay on November 30th—no immature birds were to be seen; of course, they do not nest until they have reached their black and white plumage, and it would be interesting to know where they go in the meantime. Both young and old birds were plentiful on our return journey.—W. P. L.]

PHALACROCORAX LUCIDUS (Licht.).

Phalacrocorax lucidus Reich. i. p. 89.

a–d. ♂ ♀. Ichabo Island. 3rd Dec., 1910. (Nos. 55, 57, 58, 61.)

e–h. ♂ ♀ ad. et imm. St. Paul de Loanda. 24th & 25th March, 1911. (Nos. 650, 651, 652, 661.)

i–k. ♂ imm. Walfish Bay. 1st April, 1911. (Nos. 655 & 657.)

Iris green: bill horn-coloured, whitish on lower mandible; feet black. Bare skin in front and round the eyes greenish blue, below the eye yellow; gape red: pouch greenish yellow; throat dirty yellow.

Total length in the flesh 33¾ inches; expanse of wings 52 inches.

Mr. Lowe has collected an excellent series of this Cormorant in different stages of plumage, including several fine adult specimens.

[This species was the rarest of the Cormorants. I saw about fifty of these birds perched on the iron beacon at Walfish Bay; but they were very shy, and it was not possible to get within a hundred and fifty yards of them. They were generally to be seen singly or in pairs, and only two nests were to be found on Ichabo Island. They nest, however, plentifully on a small islet in Hottentot Bay. They were most noticeable at St. Paul de Loanda, where one or two were seen perched on each buoy.

The weight of a full-grown bird is 6 lbs.—W. P. L.]

PHALACROCORAX CAPENSIS (Sparrm.).

Phalacrocorax capensis Reich. i. p. 92.

a, b. ♂ ad. et imm. Hogie Point (? Houtjes Pt.), S. Africa. 25th Nov., 1910. (Nos. 17, 19.)

c. ♀ imm. Breakwater, Table Bay. 30th Nov., 1910. (No. 38.)

d–f. ♂. Ichabo Island. 3rd Dec., 1910. (Nos. 10, 54, 62.)

Iris green; eyelids blue; bill blue at base, bare skin bright yellow; feet black.

[The Trek Duyker, a name derived from the Dutch and meaning "diver," appears to be the most plentiful of all the Cormorants, and is found well out from the coast and islands. It is generally seen flying in V-shaped flocks or long lines.—W. P. L.]

BUTORIDES STURMI (Wagl.).

Ardetta sturmi Reich. i. p. 368.

a. ♀. Nanna Kru. 22nd Jan., 1911. (No. 389.)

Iris yellow; upper mandible including nostril brownish, under mandible greenish yellow; tarsus dirty green, soles of feet yellow; joints of legs and feet light green.

Total length in the flesh 14½ inches; expanse 24 inches.

The body of this bird was infested with bright red ticks, causing swellings.

[The specimen obtained was the only one noticed; the bird is exceedingly hard to see in the mangroves. The other small Heron, *B. atricapilla*, was, on the other hand, extremely plentiful.—W. P. L.]

ŒDICNEMUS VERMICULATUS Cab.

Œdicnemus vermiculatus Reich. i. p. 200.

a. ♀. Nanna Kru. 31st Dec., 1910. (No. 210.)

Iris yellow; bill black, green at the base and at the tip; feet greenish.

Total length in the flesh 16 inches; expanse of wings 27 inches.

[This bird was common up some of the Liberian lagoons, and was occasionally seen on the coast.—W. P. L.]

GALACTOCHRYSEA LIBERIÆ (Schl.).

Glareola liberiæ Reich. i. p. 148.

a, b. ♂ ♀. Nanna Kru. 1st Jan., 1911. (Nos. 233, 258.)

Iris brown; bill black, base red; feet red.

Total length in the flesh 7¼ inches; expanse of wings 16½ inches.

[This bird is rare along the coast but very plentiful on the lagoons, where I have seen as many as fifty or sixty together. —W. P. L.]

SQUATAROLA HELVETICA (Linn.).

Squatarola squatarola Reich. i. p. 163.

a. ♂. Nanna Kru. 24th Jan., 1911. (No. 390.)

Iris brown; bill black; feet blue.

Total length in the flesh 12⅛ inches; expanse of wings 24 inches.

It was to be expected that the Grey Plover whould be found wintering in Liberia, although this is, I believe, the first actual record of the species occurring there, where Mr. Lowe remarks that it is "rare."

STREPSILAS INTERPRES (Linn.).

Arenaria interpres Reich. i. p. 142.

a. ♀. Nifu. 30th Dec., 1910. (No. 197.)

Iris brown; bill black; feet yellow.

Total length in the flesh 9¾ inches; expanse of wings 10 inches.

The Turnstone must be added to the list of Liberian birds. The specimen which Mr. Lowe procured is still in its winter plumage; it is an adult bird.

RECURVIROSTRA AVOCETTA Linn.

Recurvirostra avocetta Reich. i. p. 206.

a, b. ♂ ♀. Walfish Bay and lagoon. 8th Dec., 1910, & 31st March, 1911. (Nos. 76, 659.)

Iris red; bill black; feet blue.

Total length in the flesh 15½ inches; expanse of wings 30 inches.

[Large numbers of these birds, from thirty to fifty in a flock, were seen in Walfish Bay; they were very wild and consequently extremely hard to procure.—W. P. L.]

STERNA BALÆNARUM (Strickl.).

Sterna balænarum Reich. i. p. 68.

a. b. ♂ ♀. Walfish Bay. 8th Dec., 1910. (Nos. 54, 65.)

Iris brown; bill black, base of lower mandible yellowish; feet dirty yellow.

Total length in the flesh 8¼ inches; expanse of wings 20 inches.

[This Little Tern was quite common in Walfish Bay; it was also found on the lagoon a little way inland, which is joined to the sea by a river.—W. P. L.]

STERNA MAXIMA Bodd.

Sterna maxima Reich. i. p. 59.

a. ♂. St. Paul de Loanda. 14th Dec., 1910. (No. 88.)

b, c. ♀. Man-of-War Bay. 2nd Feb., 1911. (Nos. 421 & 423.)

d. ♂. Subono. 10th Feb., 1911. (No. 463.)

Iris brown; bill yellow; feet black, soles of feet yellow.

Total length in the flesh 19 inches; expanse of wings 42 inches.

Sterna maxima is not recorded from Liberia in Mr. Chubb's List.

LARUS DOMINICANUS Licht.

Larus dominicanus Reich. i. p. 41.

a–l. ♂ ♀ ad. et imm. Table Bay. 23rd & 24th Nov., 1910. (Nos. 1, 2, 3, 4, 7, 8, 9, 10, 11, 12, 13.)

m, n. ♂ ad. et imm. Walfish Bay. 8th Dec., 1910. (Nos. 76, 77.)

Iris greyish brown; eyelids orange-red; bill yellow with red patch on lower mandible; legs and feet bluish yellow. In immature birds the bill is black and the feet dirty whitish.

[These Gulls were never seen in open water, but they are plentiful enough at the guano islands and along the mainland; they do not, however, follow ships out to sea, as is the habit of our European species. This remark also applies to the following species, *L. hartlaubi*.—W. P. L.]

LARUS HARTLAUBI (Bruch).

Larus hartlaubi Reich. i. p. 45.

a, b. ♂ ♀. Off Hogie Point (? Houtjes Pt.), S. Africa. 25th Nov., 1910. (Nos. 15, 16.)

c–k. ♂ ♀. Table Bay. 23rd–29th Nov., 1910. (Nos. 5, 20, 23, 27, 28, 35, 36, 37.)

Iris brown; eyelids reddish; bill reddish black; feet brownish.

Total length in the flesh 14½ inches; expanse of wings 35 inches.

(The same remark applies to this bird as to the preceding species.)

STERCORARIUS CREPIDATUS (Gm.).

Stercorarius crepidatus Reich. i. p. 39.

a–c. ♂ ad. et imm.; ♀ ad. Walfish Bay. 1st April, 1911. (Nos. 651, 653, 658.)

Iris brown; bill greyish horn-coloured, tip black; feet black.

Total length in the flesh 21½ inches; expanse of wings 44 inches.

[Several of these birds were seen frequently about three or four miles from the coast of Liberia.—W. P. L.]

PROCELLARIA PELAGICA (Linn.).

Hydrobates pelagicus Reich. i. p. 34.

a. ♀. 30 miles north of the Equator. 19th Dec., 1910. (No. 121.)

Iris brown; bill black; feet black.

Total length in the flesh 6 inches; expanse 13 inches.

This specimen, which was caught alive on board H.M.S. 'Mutine,' is a very small example, the wings measuring only 4½ inches.

[This and the two following birds used to settle on the poop of the ship at night when attracted by the light on my table as I was skinning birds; they were easily caught. —W. P. L.]

OCEANODROMA LEUCORRHOA (Vieill.).

Oceanodroma leucorrhoa Reich. i. p. 33.

a. ♀. 6° 33′ N., 12° 4′ W. 5th March, 1911. (No. 568.)

Iris dark brown; bill and feet black.

Total length in the flesh 8¼ inches; expanse of wings 18½ inches.

[The stomach contained a fish.—W. P. L.]

OCEANITES OCEANICUS (Banks).

Oceanites oceanicus Reich. i. p. 35.

a. ♂. Nanna Kru. 20th Jan., 1911. (No. 345.)

Iris brown; bill and feet black, webs yellow.

Total length in the flesh 7½ inches; expanse of wings 16 inches.

MAJAQUEUS ÆQUINOCTIALIS (Linn.).

Procellaria æquinoctialis Reich. i. p. 24.

a–c. ♂ ♀. Table Bay. 28th Nov., 1910. (Nos. 25, 29, 32.)

Iris brown; bill bluish yellow and black; feet black, webs dirty white.

[The Cape Hen accompanies ships almost to the Equator, feeding on the refuse thrown overboard. The stomach of a female which I shot contained fish-spawn.—W. P. L.]

SPHENISCUS DEMERSUS (Linn.).

Spheniscus demersus Reich. i. p. 14.

a. ♂ juv. in down. Ichabo Island. 3rd Dec., 1910. (No. 42.)

Iris greyish black; bill black; feet greyish black.

[This Jackass Penguin goes a long way from land and was noticeable everywhere, swimming and diving or else basking in the sun on its side in a most leisurely manner with one foot raised well over its back. Penguins were principally seen in small lots of from two to eight birds. When a long distance from land they appear to travel chiefly under water and at a surprising rate. They are extremely valuable to the Cape Government, and between Table Bay and Ichabo there are many Government guano-preserves where thousands of eggs are collected annually. A pure albino was killed at Ichabo a few months prior to my arrival there. Additional notes on this species will be found in my account of Ichabo Island.—W. P. L.]

TURNIX LEPURANA (Smith).

Turnix lepurana Reich. i. p. 301.

a. ♂. Bemfica, Mora Cruz. 15th Dec., 1910. (No. 94.)

b. ♂. Nanna Kru. 4th Jan., 1911. (No. 215.)

Iris yellow; bill bluish horn-coloured; feet flesh-coloured.

Total length in the flesh 5¼ inches; expanse of wings 9 inches.

Mr. Chubb does not record any members of this genus from Liberia, so the species must be added to his List of Liberian Birds.

[Several Quails belonging to this species were shot on the Kru coast; they were generally to be found on sandy soil among the cassava.

Another species, which I believe to be new, occurs in the long grass, and one was shot at Nanna Kru but unfortunately not recovered. The upper surface was *olive*.—W. P. L.]

If the olive-coloured bird which Mr. Lowe shot really belonged to this genus there is no doubt that the species is new; no Quail found in Africa ever assumes a plumage which could be mistaken for olive-green by such an excellent and careful collector as Mr. Lowe has proved himself to be.

TURTURŒNA IRIDITORQUES (Cass.).

Turturœna iriditorques Reich. i. p. 419.

a, b. ♂. Nanna Kru. 5th & 10th Jan., 1911. (Nos. 365, 243.)

c. ♀. Settra Kru. 14th Jan., 1911. (No. 365.)

Iris (♂) pink, (♀) red, bare skin round eye red; bill blue; feet coral-red.

Total length in the flesh 11 inches; expanse of wings 19 inches.

These are welcome additions to the Natural History Museum, the only skins of the species in the collection being in very poor condition. According to Dr. Reichenow this rare Pigeon ranges as far south as Angola.

[The first example of this bird was obtained during a pigeon shoot, flying in company with *Turtur semitorquatus*; the second was shot whilst perched in a clump of high trees, and the third in dense forest. The birds appear to be tame but are very scarce, only one specimen having been seen besides the three obtained.—W. P. L.]

CHALCOPELIA AFRA (Linn.).

Chalcopelia afra Reich. i. p. 426.

a, b. ♂ ♀. Nifu. 30th Dec., 1910. (Nos. 199, 204.)

Iris brown; bill red, darker towards the base; feet red.

Total length in the flesh 8¼ inches; expanse of wings 12 inches.

[I found this species extremely plentiful along the Kru coast.—W. P. L.]

TURTUR SEMITORQUATUS (Rüpp.).

Turtur semitorquatus Reich. i. p. 409.

a. ♂. Sekondi. 23rd Dec., 1910. (No. 182.)
b. ♂. Nanna Kru. 5th Jan., 1911. (No. 238.)
c. ♀. Settra Kru. 16th Jan., 1911. (No. 380.)

Iris red; bare skin round eye red; bill black, base reddish; feet red.

Total length in the flesh 13 inches; expanse of wings 20 inches.

The stomach contained hard black seeds.

This common species was omitted from Mr. Chubb's List of Liberian Birds.

TYMPANISTRIA TYMPANISTRIA (Temm.).

Tympanistria tympanistria Reich. i. p. 424.

a. ♂. Sekondi. 27th Dec., 1910. (No. 177.)
b. ♂. Nanna Kru. 17th Jan., 1911. (No. 368.)
c. ♀. Sierra Leone. 3rd Feb., 1911. (No. 441.)

Iris brown; bill blackish red; feet red.

Total length in the flesh 8¼ inches; expanse of wings 13 inches.

[This Dove is much less plentiful than *Chalcopelia afra*. It prefers very thick cover.—W. P. L.]

VINAGO CALVA (Temm.).

Vinago calva Reich. i. p. 394.

a. ? Sekondi. 24th Dec., 1910. (No. 183.)
b. ♀. Settra Kru. 14th Jan., 1911. (No. 362.)
c. ♀. Axim. 16th Feb., 1911. (No. 479.)

Iris blue, outer ring red; bill bluish green, red at the tip; feet yellow.

Total length in the flesh 10½ inches; expanse of wings 19 inches.

This green Fruit Pigeon was abundant at Settra Kru and common at Axim, where it nests on Saiabi Island.—W. P. L.]

Francolinus bicalcaratus (Linn.).

Francolinus bicalcaratus Reich. i. p. 482.

a. ♀. Nanna Kru. 3rd Jan., 1911. (No. 277.)
b. ♂. Settra Kru. 15th Jan., 1911. (No. 379.)
c. ♂. Man-of-War Bay, Sierra Leone. 2nd Feb., 1911. (No. 440.)

Iris brown; bill greenish yellow, ridge of culmen black; feet dirty yellow.

Total length in the flesh 13½ inches; expanse 22 inches.

[Francolins were common along the Kru coast and also in the cassava fields at Sierra Leone, where I have put up as many as eight in a covey.—W. P. L.]

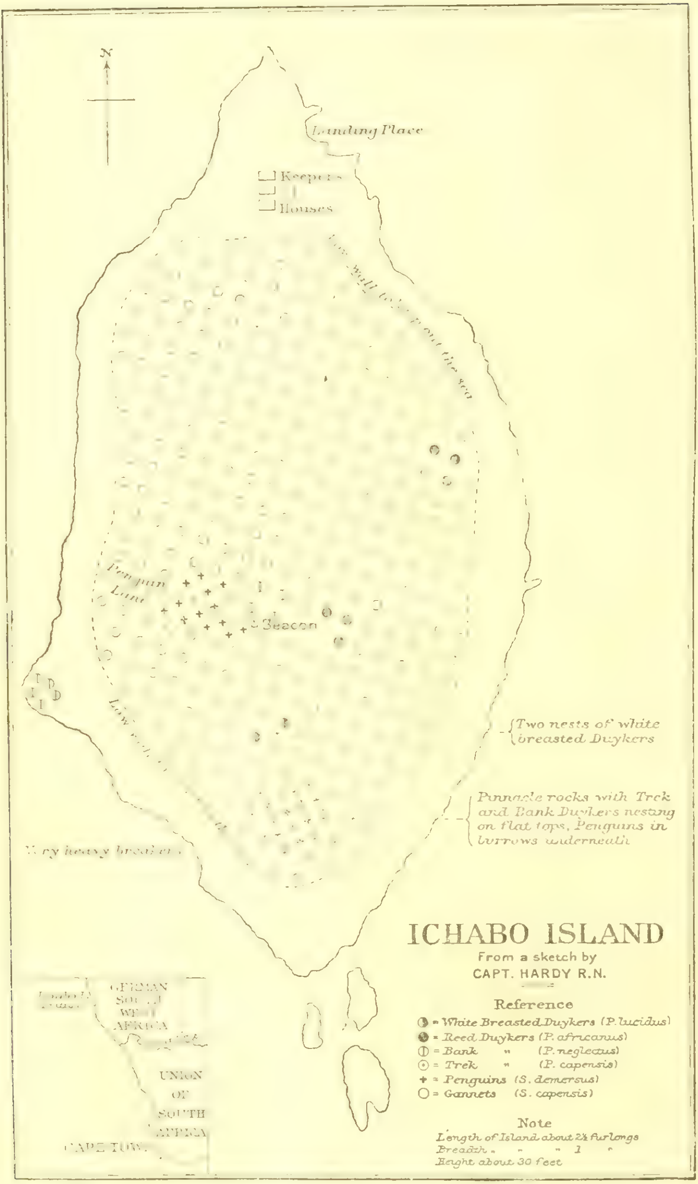
APPENDIX.

Description of Ichabo Island. By W. P. Lowe.

This island, almost unknown sixty odd years ago, lies off the coast of German South-West Africa, and is two thirds of a mile from the mainland. It is about 30 ft. high at the beacon, and consists of granite, quartz, shale and stone. In circumference it is rather less than a mile, while it is the most valuable of the various guano islands owned and worked by the Government of United South Africa. Through the kindness of Captain Hardy, R.N., of H.M.S. 'Mutine,' I was able to land on the 3rd of December, 1910, at this interesting spot, and with the permission of the Government officials to collect such specimens of birds and eggs as I desired for the British Museum of Natural History.

About 10.30 a.m. we sighted a white spot, and as we drew nearer perceived that it was unmistakably the island covered with Gannets. Apart from the island being literally a mass of birds, the air and water seemed alive with them in every direction: in fact, the only open space was around the

Text-fig. 3.


N
Landing Place
Keepers
Houses
Low wall to keep out the sea
Penguin Lane
Beacon
Low wall
Two nests of white breasted Duykers
Pinnacle rocks with Trek and Bank Duykers nesting on flat tops. Penguins in burrows underneath
Very heavy breakers
GERMAN SOUTH WEST AFRICA
UNION OF SOUTH AFRICA
CAPE TOWN
ICHABO ISLAND
From a sketch by
CAPT. HARDY R.N.
Reference
◑ = White Breasted Duykers (P. lucidus)
● = Reed Duykers (P. africanus)
⦶ = Bank " (P. neglectus)
⊙ = Trek " (P. capensis)
+ = Penguins (S. demersus)
○ = Gannets (S. capensis)
Note
Length of Island about 2½ furlongs
Breadth " " " 1 "
Height about 30 feet

Plan of Ichabo Island.

guano men's houses at the north end of the island, and this is kept clear by a dog. The accompanying plan (text-fig. 3), which Captain Hardy kindly prepared, gives an excellent idea of this bird resort.

No sooner had we anchored than the headman and some others came off in a surf-boat to inquire what we wanted. I handed over my permit, and it seemed to cause some surprise, as these valuable guano deposits are never allowed, under any circumstances, to be disturbed. I explained that I wanted a good number of each species. After luncheon, Captain Hardy and I were rowed ashore in the boat belonging to the island. As we neared the landing the whole population, consisting of a few men, five dark women and some children, came to meet us. We awaited the incoming breaker, which shot us right upon the shelly shore, then, jumping quickly out in order to avoid being soaked by a second breaker, and taking the basket and boxes for eggs, we left the men and women to haul the boat up well out of the reach of the water, in which task it was amusing to watch the tiny children trying to assist. The headman now joined us, and after a hasty inspection of the dwellings and a look at the livestock, consisting of pigs, poultry, cats, and a very fine dog, we proceeded to examine the most marvellous preserve of nesting birds I had ever seen. To the north-east the island is rocky, and here were to be seen plenty of scattered Cormorants; but we were now to enter the huge gathering of Gannets, or Malagas as they are called. I first secured eggs and then bagged a fine male, which I put into the basket. The birds, which were quite tame and very handsome, sat, or stood, as closely packed as possible. They appear to make no nest, and the single egg, white in colour, though generally very dirty, is laid in a slight depression of the guano and feathers, with which the island is covered, and, even with the utmost care, it was not possible to avoid treading on occasional eggs. As we waded along through this living mass the birds tried to make room for us by fluttering on the top of one another, raising a most disagreeable dust which settled all over us. What with the cries of the birds at our feet, and a crowd of them flying over our heads it was most bewildering.

Passing south-west we came to the curious lane which the Gannets leave for the flightless Penguins to pass to and from the sea from their nests. We walked up this narrow path, and found a colony of Penguins nesting in small burrows under the rocks. I took some eggs, which are excellent eating and have a commercial value of twopence each at the Cape, and also a nice young specimen in the down. Retracing our steps, we visited the Bank Cormorants (*Phalacrocorax neglectus*). These are large, dark birds, and can be distinguished at a glance from all the others by having no bright skin coloration about the head. There was no difficulty in obtaining them or their chalky-blue eggs. The nests were composed of seaweed and built on pinnacle rocks. The headman now sent for some empty sacks as our basket was overflowing. He told me that there was another kind of Bank Cormorant, with white spots on the rump, so we went to see these at the south end of the island, but they proved to be the same species in adult plumage. I took a pair of these and a nice fluffy nestling. Amongst this colony of Bank Cormorants were a quantity of Trek Cormorants, which are so called on account of their roving habits, whereas I seldom saw the others far from their breeding-ground or the shore. They are quite the commonest of all, and can be easily distinguished from the others by the bright yellow throat: the eyes are green, and the brilliant metallic-blue eyelids are most beautiful. After taking some eggs and several specimens, we walked back to Penguin lane, where we hopped over the Penguins' heads to try and avoid their beaks, as they bite severely, even through putties. We then crossed the ridge of the island to where the Reed Cormorants (*P. africanus*) are to be found. These are the most handsome of all with their dark bodies, red faces and eyes, black crests, and long tails. The nests were placed on rocks, and built, as usual, of seaweed, for which they dive, and it is amusing to see them flying home with quantities in their beaks. The structures are generally said to be built of sticks, but as there is no vegetation in this desert country they are compelled to use what nature provides. I found these birds more shy than any of the previous kinds, and it became obvious, after several futile attempts to catch them on their nests, that other methods must be employed. Our people were carrying sticks about the size of broom-handles, and as the females returned to their eggs immediately we moved away, some of the men crept within reach, and with a smart tap on the neck, secured several specimens. This proved rather dangerous work, as we were surrounded by Gannets, and, though they are peaceful birds, they resent men creeping on all fours amongst them and their eggs. With such formidable beaks, a blow in the face might prove serious; in fact, this did happen to our genial headman whilst he was making for a further pair, but, fortunately, he was struck below the eye, though this caused a nasty wound which bled profusely. As a fair number of specimens had now been secured, I resolved not to try for any more, but to turn my attention to the large White-breasted Cormorants (*P. lucidus*), the rarest variety found here, of which there were only two nests on the island. Returning once more for a short distance, we were able to see the birds from where we stood, but the men greatly doubted the possibility of being able to stalk them, as they are the most shy of all. As I had promised not to use firearms on or near the island, there was nothing for it but to try and take them in the same manner as the Reed Cormorants; for skins of this species were particularly required. After a good many attempts, between which the birds kept returning to their nests in a most persistent manner, we had to give it up, and, whilst the headman said the only way to get specimens would be by shooting, I was loth to do this. It struck me that trapping might answer the purpose, so I arranged to procure some traps, which were placed on the nests, and by this means both pairs were caught. Their nests were larger than the others, and placed in a very prominent position. The eggs, like many taken, were too well incubated to be blown.

Passing east through the Gannets, we walked along the side of the wall in the direction of the settlement, examining a few more Reed Cormorants' nests; the females were quite tame, and I stroked one without its leaving its eggs. We next passed the iron pier on our right, where the guano boats are loaded, and this is a very favourite perch for the White-breasted Cormorants, which like to sit here and sun themselves. Having reached the houses, we had some refreshment and a chat with the man in charge, who told me that they ship nearly 2000 tons of guano per annum from this island, and that thirty men are employed during the months of April and May, when all the Gannets depart. There were two large stacks of guano at the time of my visit; each stack contains about 800 tons, and its value is £6 10*s*. per ton. All provisions, including water, are brought by steamer from Capetown every three months. After the birds have been away for two months they suddenly re-appear, in one immense flight, which is said to last only an hour. This sight must be marvellous indeed. I noticed a small seal at the settlement which had been washed up on the island and stuffed; also a Wandering Albatross (*Diomedea exulans*), which had been caught on a ship some distance to the southward. There were, in addition to the birds mentioned, the Southern Black-backed Gull and Hartlaub's Gull. The former does a great deal of damage by eating the eggs and young birds; but the parents seem to shew very little resentment at this behaviour. A few small waders and grey-coloured ducks were also seen, but not close enough to determine the species. Flamingos occur occasionally, but are commoner on the German mainland, where there is said to be a fine of £15 for shooting them. The White-breasted Cormorants are quite rare at Ichabo, but I hear that on a small island, a mile and a half south, in Hottentot Bay, they are common, and that there are as many as five hundred nests there. Having bid adieu to the guano-men, and got our specimens into the boat, we left at 4.30 P.M. for the ship. As the sun sank behind the island, the sight of the few lonely tombstones appearing against the horizon, amidst the never ceasing stream of bird-life, was a sight weird in the extreme, and one which left a lasting impression.

XI.—*Observations on the Striated Field-Wren* (Calamanthus fuliginosus).

By H. Stuart Dove, F.Z.S., M.R.A.O.U., Fellow of the Royal Society of Tasmania.

The Field-Wren of Tasmania is plentiful on the swampy tussocky plains near the sea-beach of the north-west coast of the Island where I reside, and its sweet little strain is one of the most familiar sounds of winter and spring; it is, indeed, one of our most persistent songsters, and there are very few months of the year when it may not be heard. Formerly considered to be identical with the Victorian form of the same species, it has now been separated. In Mathews' 'Hand-List of the Birds of Australasia,' issued as a supplement to 'The Emu,' 1908, our species retains the title "*fuliginosus*," while that of Victoria (Australia) is distinguished as "*albiloris*." As to vernacular names, our bird has been sometimes called the Rush-Warbler, from its habit of uttering its ditty from the top of a "Button-Rush" or other swamp-growth, but "Striated Field-Wren" is now the recognised term. The boys of North Tasmania have bestowed upon it the not inapt epithet of "Mud-Lark," expressive of its fondness for frequenting wet, swampy land, and its vocal ability.

The upper plumage is of a pleasing olive-brown, distinctly streaked with black, while the under side is yellowish, streaked in the same way; there is a whitish line over the eye. The tail is usually carried erect, but I have noticed that this bird will often sing with the rectrices depressed until they are in a line with the body: on being approached, however, the tail will be elevated and the body moved from side to side in an excited manner, the songster often keeping its position and continuing the strain till the intruder is within two or three yards, when it will drop into the herbage at the foot of its perch and disappear. The song is usually uttered from the summit of a piece of scrub, such as young swamp tea-tree (*Melaleuca*), or of a large tussock like the "button-rush" (*Gymnoschœnus*), which grows on swampy flats; often the top of a post in a rail-fence forms the perch. The song is short but sweet, the phrase varying in individuals but appearing constant in each: thus, if at a certain spot we hear a song which strikes us as differing from the normal, on visiting the spot again we can usually hear the same song repeated. In the ordinary ditty certain notes ring out much louder than the rest, and these give a ventriloquial effect, sounding sometimes as if they were several yards distant from where the songster is perched. In the spring month of October, a Field-Wren was heard singing from the summit of a piece of scrub near the beach with a phrase like "*Weet-ee-tee-tee-tra*" continually repeated, and directly the bar was concluded there would generally be two notes, "*twee-twee*," before it was recommenced. It was difficult to determine whether these two almost isolated notes were uttered by the singer or by its mate concealed near by, as is the case with the Coachwhip-bird (*Psophodes crepitans*) of the East Australian scrubs.

The *Calamanthus* is one of our earliest breeders, beginning probably during the cold frosty month of July; nesting is certainly in full swing during August, usually one of our roughest and wettest months. The nest is a domed structure with a side-entrance, quite thick and bulky from the amount of material which is used for its construction. Books which I have consulted give the nesting-site as at the foot of a bush or tussock; such, however, has not been my own experience, for while searching under bushes or tussocks I was invariably unsuccessful. All the nests found on this north-west coast of Tasmania have been placed well *within* a large sagg or tussock; and it is a curious fact that this species almost invariably places the entrance of its abode on the south-east side of the plant in which it is situated, or away from the prevailing north-west winds which bring a great deal of heavy rain. The bird slips in and out of the side-entrance through the drooping blades of the tussock. About two years ago I found quite a number of these domiciles by searching through the hundreds of large clumps or tussocks which abound on the swampy flats adjacent to the sea-beach. The nest is usually placed a foot or two from the ground in the heart of the tussock, with the entrance to one side among the drooping blades, by which it is completely concealed; the structure is generally placed on a base of moss and vegetable débris, such as fragments of dry tussock blades. A typical structure was discovered in a large clump of the long-bladed "sagg," *Xerotes longifolia*; it was placed well within the clump and about twelve inches from the ground, having the entrance to the south-east among the drooping blades. The material of the exterior was coarse grass-stems and bits of various other dry vegetation; the bulk of the nest was of finer grass, of which also the lining was composed, with the addition of some feathers. The young had left the nest some days previous to its discovery on October 20th; one infertile egg, of the usual reddish tint, remained, which measured approximately ·87 × ·68 inch. During the same spring another nest of a somewhat different type was found in a *Lepidosperma* tussock growing among young swamp tea-trees (*Melaleuca*): it was packed some way down in the heart of the tussock, and would doubtless have rested on the ground within had not the Field-Wrens, before commencing the actual structure, collected a quantity of moss and vegetable débris as a base of operations. The nest was composed of dry grass, with a little moss about the entrance, which, contrary to the usual custom, faced the north-west; as the tussock was in this instance protected by small scrub, however, the position of the aperture was not of so much importance. The structure differed from the usual type in not being nearly so massive, and somewhat resembled a deep cup tilted on one side, so that, when looking straight down into the tussock, I gazed into the opening and could just discern the eggs when the sitting bird was absent. Neither interior nor exterior of the nest could be seen, the latter being very cunningly concealed under the tussock-blades and long grass which grew up with them, as well as by the pointed-leaved trailing plant *Stellaria pungens*. This nest would have remained unseen had not the sitting bird flown out almost from under my feet. On examination there proved to be three partially-incubated eggs of a reddish tint, with a large patch of purplish black all over the apex, then lighter dusky spots, and more of these scattered about the remainder of the shell. One of the clutch was much lighter than the other two—almost whitish. Two of them had practically the same measurements, approximately ·87 × ·68 inch; the third egg was accidentally fractured.

The eggs are usually three in number, of a reddish-brown tint, with a zone of purplish brown about the apex, and some scattered indistinct spots besides.

The lower lip of the nest-entrance protruded beyond the upper.

While its abode was under examination the male bird sang furiously from the top of a piece of scrub, evidently with the wish to distract my attention.

In some cases an old nest already in the heart of a tussock appears to form a base for the new one, so as to raise the latter well off the marshy surface of the plain; often the top of the entrance appears to overhang and form eaves to cast off rain or hail and keep the opening dry and snug. The walls of the structure are usually thick and closely woven, as indeed they need to be, for incubation is often carried on during the cold wet months of early spring.

Just before the middle of September I saw two young Field-Wrens making their way through a scrub of small tea-tree in charge of their parents, the example of which they followed most worthily in slipping out of sight in the quickest possible time. At the end of the same month I found three young which had lately left the nest and were concealed in some low scrub. The old birds laboured hard to draw me away from the spot, but at length I was successful in flushing the young, which lay very closely in cover. When disturbed, two of them flew a few yards before dropping into another scrub-patch, while the third remained concealed until almost trodden upon, when it made off in a different direction. They appeared to be of a generally darker hue than the parents, their plumage being even more splashed and striated; their tails were quite short, like those of young Blue Wrens (*Malurus*) when first fledged, but they could fly for a few yards very fairly.

The adult male is a darker and handsomer bird than the female; the striations are more distinct; and I have noticed as a little trait that it sings desperately when we are approaching its nest or young too closely, hoping, no doubt, to draw attention to itself and away from the home or the concealed offspring.

Appended are measurements of the two typical nests described above:—

(1) Massive and domed. Total length, upper side 6½ inches, lower side 6 in.; height at front 4½ in.; height at back 3 in.; height of entrance-aperture 2½ in., across entrance-aperture 2 in.; length of egg-cavity, front to back, 2½ in.

(2) Smaller, like a deep cup much tilted. Outside measurements: front to back 3½ inches, top to bottom 4½ in. Inside measurement: entrance to back 3 in.

The great depth from the top to the bottom is due to the quantity of moss and other materials placed at the base.

XII.—*Notes on some South-American Birds.*

By Claude H. B. Grant, M.B.O.U.

(Text-figures 4 & 5.)

Since the publication of my paper in 'The Ibis' for 1911, I have had a further opportunity of examining more carefully the series of skins and eggs of some of the species mentioned in that communication. These notes will help to elucidate some of what have hitherto appeared to be rather complicated questions.

I have pleasure in again thanking Mr. Ogilvie-Grant for so kindly assisting me in the National Collection, Mr. Ernest Gibson for allowing me to examine specimens in his private series, and Dr. Sclater for allowing me to encroach on his time in the correction of the proofs.

VANELLUS GRISESCENS Prazak.

Through the kindness of Dr. Reichenow I have recently had the loan of a typical specimen of this species obtained in Paraguay; this agrees with the large series from the Argentine which are recorded in 'The Ibis' for 1911, p. 464, under the name of *V. cayennensis*.

When writing that paper I intended to name the Argentine bird, but fortunately the description was not published.

On again going through the series now in the National Collection, some other differences, besides those described by Dr. Prazak, are observable.

The breast-band of *V. grisescens* is washed with oily-green, approaching *V. chilensis* in this respect; the light edges to the inner secondaries and tertials are exactly intermediate between those of *V. chilensis* and *V. cayennensis*, as also is the extent of feathering on the tibia.

In size the bird is also intermediate.

The geographical distribution of the three species appears to be as follows:—

V. chilensis. Central and Southern Chili to Southern Patagonia.

V. grisescens. Northern Patagonia, Argentina, Uruguay, and Paraguay across to Northern Chili.

V. cayennensis. Brazil, Guiana, Colombia, Peru, and probably the rest of the Northern States.

As might be expected, some Northern specimens of *V. grisescens* are very close to the true *V. cayennensis*, but typical forms are quite distinct.

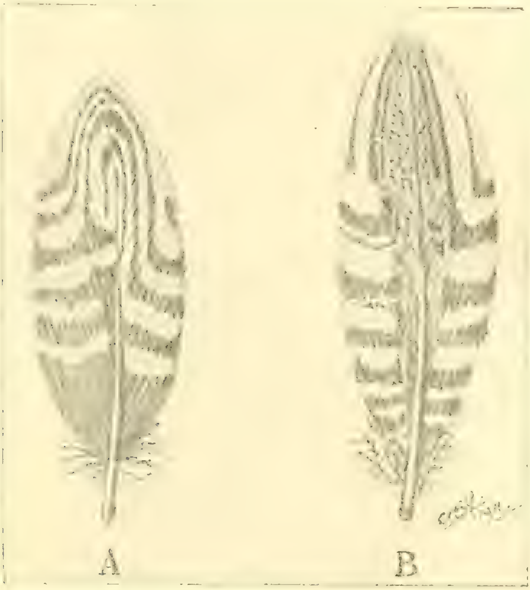
NOTHURA MACULOSA. (Text-fig. 4, p. 275.)

On working out the collection for the purposes of the paper mentioned above, I found no little difficulty in distinguishing between the fully adult and immature birds of this species.

On close examination I find that a good distinction can be found in the inner secondaries and tertials, as shown in the text-figure.

In the adult the concentric rings are broken and usually quite open towards and at the tip. In the young these feathers have complete concentric rings, *i. e.* closed towards and at the tip.

Text-fig. 4.



Feathers from (A) the young, and (B) the adult of *Nothura maculosa.*

There is also a difference in size, the younger birds being somewhat smaller and more buffy than the fully adult; but these differences are not perhaps always to be relied on, though those of the feathers appear to be quite constant.

Rallus rhytirynchus. (Ibis, 1911, p. 462.)

The young plumage of this species appears to be undescribed; it differs from the adult as follows:—

Above olive-brown, paler on the wings and more sooty on the head and rump; wing-feathers and tail sooty brown, the latter broadly edged with olive-brown; cheeks, ear-coverts, and ill-defined superciliary stripe dirty white mottled with sooty brown; lores dusky brown; sides of neck and flanks dirty buffy brown, abdomen paler, under tail-coverts rather darker; under wing-coverts and axillaries olive-brown, the former edged with whitish: bill, as a rule, shorter and olive in colour.

PLEGADIS GUARAUNA.

The description of the winter dress of this bird was inadvertently omitted from my paper in 'The Ibis' for 1911, p. 340, and should be as follows:—"The adults taken in January, February and April are all assuming the winter dress, the under parts apparently changing to the colour of the following specimen.

"Head and neck streaked with white; rest of upper parts including the wings as in the summer dress, but lacking the chestnut on the mantle and wing-coverts; below including thighs sooty brown, strongly washed with purple-violet and with a very slight sheen; under wing-coverts, axillaries, under tail-coverts and tail as in summer dress.

"Birds in first plumage, on the other hand, besides being more oily-green above, are never so strongly streaked on the head, and are sooty brown below without the purple-violet wash; the soft parts are also duller."

PYROCEPHALUS RUBINEUS.

On again carefully examining the large series of males of this species in the British Museum, I find there is little doubt that my second conclusion (*cf.* 'Ibis,' 1911, p. 121) is correct, *i. e.* that there are three distinct plumages:—

The first is as described, *op. cit.* p. 122.

The second is a particoloured dress, with more or less ashy feathering below and with an ashy crown interspersed with red feathers, or with ashy tips to the scarlet crest.

The third is that of the fully adults, which have the ordinary moult after the breeding-season and again assume a full dress.

All the birds in second plumage that I have examined (February–June) are moulting, unlike one taken in July.

What, however, I should like to examine, and what is not shown in the large series before me, is a first-plumage bird in moult.

CIRCUS MACULOSUS.

The small but good series of this Harrier collected by Miss Runnacles and myself and now in the National Collection (see 'Ibis,' 1911, p. 330), coupled with the series already there, allows me to make some contribution to the bewildering stages of plumage through which this species passes. I am able to make out no less than six stages of plumage which it undergoes, as follows:—

(1) In down.

(2) Above dark brown, the feathers edged with rufous; below throat buff; breast and belly, each feather longitudinally centred with dark brown and edged with buff, giving the under parts a broadly streaked appearance; thighs rufous; under tail-coverts mixed dark brown, buff, and rufous.

(3) A very dark dress, deep brown above and below; marked with rufous on the breast; wing-coverts, wings, and tail dirty grey.

(4) A still darker dress, blackish brown above and below, no rufous markings; wings and tail clearer grey.

(5) Above similar to the fourth dress; below blackish brown, each feather spotted or barred with whitish (not longitudinally centred as in the second dress), giving these parts a mottled appearance; thighs rich rufous, sometimes tipped with lighter colour; under tail-coverts barred rufous and white.

(6) Adult dress.—Male: white below, sparingly spotted and streaked with black on the flanks and belly, and with narrow V-shaped buff markings on the thighs.

Female: suffused with buff below, with broader and more numerous streaks and spots of black, but with less black on the foreneck.

PHAËTHUSA MAGNIROSTRIS.

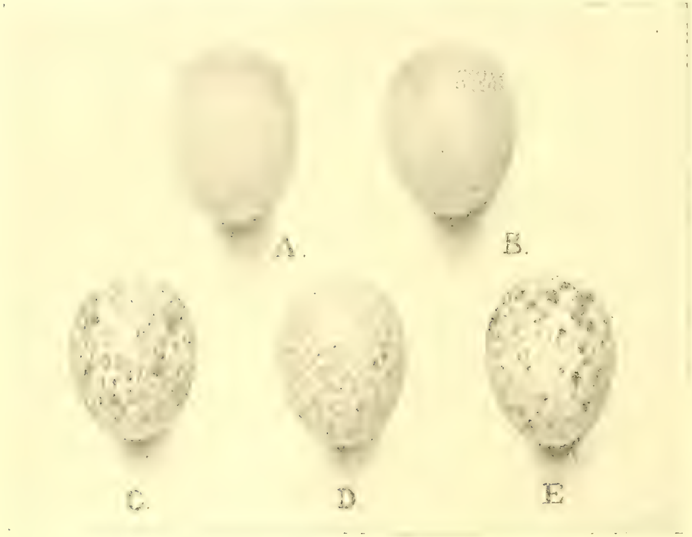
The following correction should be made in my paper ('Ibis,' 1911, p. 471):—

In the last line but one, "they were" should be "this species (*P. magnirostris*) was."

MOLOTHRI. (Text-fig. 5.)

A rather hopeless state of confusion exists with regard to the eggs of the three species of *Molothrus* found in the Argentine, viz.: *M. bonariensis, M. rufo-axillaris,* and *M. badius.*

Text fig 5



A, B. Eggs of *Molothrus badius.*
C–E. ,, *Molothrus rufo-axillaris.*

I have recently carefully examined the series now in the British Museum, and have been able to come to the following conclusions, which throw some further light on this interesting question.

Also I have compiled a list of the foster-parents of the two parasitical members, not only from my own observations, but also from those recorded by Mr. Hudson in the 'Proceedings' of the Zoological Society and 'Argentine Ornithology,' and from the collections made by Miss I. G. Runnacles.

Unfortunately, with regard to the eggs of *M. rufo-axillaris* and *M. badius* collected by Mr. Hudson and now in the British Museum, they were taken at a time when Mr. Hudson was very doubtful in his own mind as to their identity, as shown by his letters in the P. Z. S. for 1870, 1872, and 1874.

Hence the only eggs which I positively know to be authentic are those collected by Miss Runnacles and myself, and I have based my conclusions mainly on those.

The eggs of *M. bonariensis* are distinct enough and cannot easily be confounded with either those of *M. rufo-axillaris* or those of *M. badius,* even when found together in the same nest.

There appears to be about nine varieties of colouring, varying roughly from pure white, with or without markings, to a fawn-colour or flesh-colour, with more or less numerous markings.

So far as we know at present, the following are the foster-parents of this species, though the list is probably not yet complete:—*Mimus modulator, Troglodytes hornensis, Furnarius rufus, Anthus correndera, Serpophaga nigricans, Milvulus tyrannus, Machetornis rixosa, Turdus rufiventris, Synallaxis hudsoni, Brachyspiza pileata* and *Molothrus badius.*

It is to distinguish between the eggs of *M. rufo-axillaris* and *M. badius* that the real difficulty has hitherto existed, and I have arrived at my conclusions from knowing the authenticity of the series before me and from the evidence of the individual eggs taken from carefully determined nests.

The main mistake has arisen from taking it for granted that eggs found in the nests of *M. badius* were those of that species. This is by no means the case, as the majority of eggs found in the nests of *M. badius* (where both the parent birds are attendant) are really the eggs of *M. rufo-axillaris,* as is conclusively shown by comparing specimens with those taken from nests of other birds in which *M. rufo-axillaris* is known to place its eggs.

We now know that *M. badius* is the only species that does its own sitting and hatching, and that *M. rufo-axillaris* is its chief aggressor, and as we also know that *M. rufo-axillaris* is parasitical on three other species, those eggs which agree should belong to one and the same species.

The text-figures (above, p. 278) shew better than any description the differences between the eggs of these two birds, though they can be also separated by the colour, the eggs of *M. badius* being nearly always greyer than those of *M. rufo-axillaris*.

The four species on which *M. rufo-axillaris* is parasitical are:—*Mimus modulator, Agelæus thilius, Pseudoleistes virescens,* and *Molothrus badius.*

XIII.—*Note on the* Ruticilla nigra *of Giglioli.*

By T. Salvadori, M.D., H.M.B.O.U.

In the 'Bulletin' of the British Ornithologists' Club for 1903, xiii. p. 79, there appeared for the first time the description by Prof. Giglioli of a supposed new species of Redstart from Sardinia, under the name *Ruticilla nigra.*

Strange to say, the female was described as precisely similar to the male, for it is well known that females of the genus *Ruticilla* are constantly different from the males.

The type male specimen had been entrusted to the Hon. W. Rothschild, together with the description, to exhibit to a Meeting of the British Ornithologists' Club. Mr. Rothschild said he was inclined to think that the supposed new species might possibly be based on melanistic examples, remarking, however, that the alleged similarity of the female was rather against his theory. On the other hand, Dr. Hartert, on the same occasion, said he had not the slightest doubt that the species was nothing but a melanistic variety; he stated, besides, that he felt sure that the supposed female had been incorrectly sexed.

Later, in the October number of 'The Ibis' for the same year (p. 581), appeared a full account of the supposed new species by Prof. Giglioli, under the title "On a presumed new Species of Redstart from the Island of Sardinia" ('Ibis,' 1903, pp. 581–584). Here we were told that the two birds described had been captured alive by a Sardinian shepherd, who, having no cage, put them in a lamp or lantern, which I suppose must have been very smoky. This circumstance awoke a suspicion that the melanism suggested by Rothschild and Hartert was artificial.

Prof. Giglio-Toss, who has succeeded Prof Giglioli at Florence, at my request has sent to me the two typical birds, and it has been sufficient to wash the tail and a wing of one with soap and water or with benzene, while using a white camel's-hair pencil, to have the pencil blackened as well as my fingers and the towel, while the dark coloration of the tail was paling and getting redder.

This result was witnessed by all the staff of the Museum, Prof. Camerano, Count Peracca, Prof. Cognetti, Dr. Borelli, Dr. Zavattari, and by Prof. Giglio-Toss.

The two birds examined are *Ruticilla titys* accidentally smoked. No doubt both specimens are males, as positively stated by Dr. Hartert. As to the alleged differences in the sternum and pectoral *arch*, I leave the subject to my friend Prof. Giglio-Toss to investigate, but I doubt whether they will be confirmed. As regards the asserted differences in size between the two Sardinian birds and those from continental localities, there are none; at least the bill, the wing, the tail, and the tarsus are absolutely similar: the size of the two birds appears smaller on account of the way in which they have been stuffed.

It is especially worth mentioning that the specimen marked *male* is not symmetrical, having the feathers of the right side of the abdomen grey, almost as in normal *R. titys*, while the left side is blackened by a more complete smoking.

XIV.—*On a Journey to the Fiji Islands, with Notes on the present Status of their Avifauna, made during a Year's Stay in the Group,* 1910–1911. By P. H. Bahr, M.A., M.B., F.Z.S., M.B.O.U., F.R.G.S. *Together with a Description of a small Collection of Skins from the same locality,* by C. B. Ticehurst, M.A., M.B., M.B.O.U.

(Plate V.)

A journey to the Fiji Islands is nowadays no perilous undertaking. Though they are situated at the opposite side of the globe, the voyage may be accomplished within a period of two months *viâ* Australia, or in half that time by the direct mail route *viâ* Canada. To the ornithologist, a passage, however rapid, through regions zoologically so distinct must be of surpassing interest.

I first propose to give a few notes on the birds seen on the outward journey *viâ* Australia, which are necessarily confined to the more maritime species*.

After the familiar European forms seen during the sea passage through the Bay of Biscay, at Gibraltar, and in the Mediterranean, the teeming bird-life frequenting the Suez Canal in December comes as a welcome change. There, for the first time, the British ornithologist obtains an insight into the tropical avifauna. Flocks of Flamingos, making a hazy pink line, extending as far as the eye can reach, fringe the blue waters of the shallow lagoons, while overhead, Pelicans, in flocks of fifty or more, soar in a flight strikingly powerful and majestic for such an ungainly bird.

Birds of Prey were much in evidence: Marsh-Harriers were seen in numbers in quest of frogs on the Canal banks; while a number of Hobbies pursuing insects, a Lesser Kestrel, and a Long-legged Buzzard (*Buteo ferox*), of which a splendid view was obtained, completes the list of the smaller Raptores.

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* In the Straits of Gibraltar and again in the Gulf of Lyons I saw numbers of the Mediterranean Shearwater (*Puffinus kuhli*) and the Yellow-legged Herring-Gull (*Larus leucophæus*).

A large dull-coloured Eagle, carrying a small hare in its talons, I was unable to identify.

I was surprised to see a pair of Ravens (*Corvus umbrinus*) hopping about in the Desert sand, while another quite unfamiliar bird which appears to be abundant in the district is the Pied Kingfisher (*Ceryle rudis*).

Shortly after entering the Canal (Nov. 30th) we were visited by a small party of White Wagtails (*Motacilla alba*), which remained on board till night fell, in spite of the attentions of the ship's cat. In the salt marshes on both sides of the Canal, the water was obscured by immense flocks of Ducks, the identity of which, owing to the failing light, I could not distinguish; there were, however, great numbers of Grebes, amongst which the Black-necked species (*Podicipes nigricollis*) could be recognised. Purple Herons and Black Storks were present in numbers. Of the Waders the Common Sandpiper, Curlew, Redshank, and Ringed Plover were there in their tens of thousands. The commonest species of Gull seen was the Mediterranean Black-headed Gull (*Larus melanocephalus*).

The Kites at Aden (*Milvus migrans*) are a familiar sight to every visitor; great numbers surrounded the ship, snatching the offal from the water and cleverly transferring dainty morsels to their beak while in flight. The aërial antics of these birds in pursuit of one another were quite remarkable, they were often seen to turn a complete somersault in the air. Above the town of Aden, Egyptian Vultures were soaring, and in direct contrast to them it was strange to see and hear what I took to be the Arctic Tern*.

For several days after leaving Aden, whilst in the open Indian Ocean, long. 60° E., lat. 10° N., large flocks of Grey Phalaropes (*Phalaropus fulicarius*) flew parallel with the ship, constantly alighting on the water and resuming their journey eastward when overtaken by a flock following in the rear.

At Colombo the voyager is briefly introduced to the avifauna of the Indian region, the ubiquitous Indian Crow being the first species to make itself known by its clamorous presence. The Pondicherry Eagle (*Haliastur indus*) and the Chinese Tern (*Sterna sinensis*) were noted in the harbour.

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* I identified this species through field-glasses.

From Colombo to the shores of Australia is a ten days' run over a trackless ocean, and consequently birds of any sort are rarely met with. After crossing the line the nearness of the Cocos Keeling Islands, though themselves invisible, is marked by numbers of Boobies (*Sula piscator*) and Petrels, among the latter being a large brown species (*Puffinus brevicauda* vel *tenuirostris*), familiarly known in Australian waters as the "Mutton Bird," with which a closer acquaintance was made on approaching the coast. Our proximity to land was heralded by large flocks of Sooty Terns (*Sterna fuliginosa*).

A short trip up the Swan River to Perth afforded me an opportunity of seeing a little of the birds of Western Australia. Conspicuous were the Pied Cormorants (*Graculus varius*) resting on the harbour buoys, Jameson's Gull (*Larus novæ-hollandiæ*) in mature and immature plumage, and the Australian Pelican (*Pelecanus conspicillatus*) soaring overhead; but the number of species seen on the sandbanks was not great. I recognised flocks of a large Tern (*Sterna bergii*), which henceforth became one of the commonest sea-birds. There were also a few individuals of a smaller species, probably the Whiskered Tern (*Hydrochelidon hybrida*). The Black Swan, after which bird the river is named, was represented by five semi-domesticated examples swimming in front of the town pier.

Albatrosses were not seen until, after passing Cape Lieuwin, we had entered the Australian Bight. Then two species, the Wandering (*Diomedea exulans*) and the Black-browed Albatross (*D. melanophrys*), appeared together.

Like everyone who has seen the former for the first time, I was greatly impressed by its almost unparalleled power of flight. The observer obtains a little idea of the rate at which it is travelling on apparently motionless pinions, when, after lagging behind for a couple of miles, it overtakes the ship with apparently but a single flap of the wings from the radio-carpal joint. Often when the birds were hanging seemingly motionless above the ship I could clearly see how they adjusted their balance to every gust and eddy by raising or depressing first one wing and then the other. When attempting to check their flight suddenly, they have a habit of throwing back their body weight, tilting up their breasts, throwing up their tail, and spreading their great paddles ; in this manner they skid over the waves for a considerable distance. The flight of the smaller species, though majestic enough, cannot be compared with that of its larger relative.

To my mind, however, the Mutton Bird possesses powers of flight which compare very favourably with either. This species seems to travel even faster than an Albatross, whether with or against the wind seems to matter little, and I never saw the bird settle or flap its wings. The evolutions it describes must be seen to be appreciated. Once I was fortunate enough to see a few individuals of the Sooty Albatross (*Phœbetria fuliginosa*), the Cape Pigeon (*Daption capensis*), and the Black-bellied Storm-Petrel (*Thalassidroma melanogaster*). Again, during a gale of some magnitude numbers of the White-faced Storm-Petrel (*Pelagodroma marina*) appeared dancing in front of the ship's bows.

Christmas Day 1909 was spent at Adelaide. Here I saw the Pacific Gull (*Larus pacificus*) and the Australian Gannet (*Sula serrator*) at close quarters, in addition to the now familiar Jameson's Gull and Berg's Tern. On shore English birds, the Sparrow, Starling, and Goldfinch, were as abundant, if not more so, than in their native land. Numbers of small Plovers (*Ægialitis ruficapilla*) were evidently nesting on the waste land by the pier ; other typically Australian species noted during a short day spent on shore were the Kestrel (*Tinnunculus cenchroides*), the Square-tailed Kite (*Lophoictinia isura*), and the Australian Spur-winged Plover (*Lobivanellus lobatus*).

During a short stay of twenty-four hours at Melbourne, I saw a few more birds. The small Australian Cormorant (*Graculus novæ-hollandiæ*) was common in the harbour, and more interesting still were several flocks of the curious Musk-Duck (*Biziura lobata*). In the town of Melbourne itself the Indian Mynah is the commonest bird; there are also great numbers of Sparrows and Starlings, and in the public gardens Thrushes and Blackbirds abound. Amongst these exotic birds I managed to pick out a few Australian species, the Laughing Jackass (*Dacelo gigas*), the Nankeen Night-Heron (*Nycticorax caledonicus*), and the Sombre Gallinule (*Gallinula tenebrosa*).

After leaving Melbourne and passing through Bass Straits I made the acquaintance of two Giant Petrels (*Ossifraga gigantea*); these were easily distinguished from the Sooty Albatross, which they somewhat resembled in size, by their peculiar flight and the conspicuous fleshy tint of their bills. After following the ship for a short time they took themselves off. A small Petrel (*Prion ariel*) now became common; the flight is extraordinarily rapid and rivals that of the Mutton Bird.

After leaving Adelaide on Christmas Day 1909, and until we arrived in Sydney Harbour, a number of Skuas had been following the ship and disputing the offal in the wake with the Albatrosses. Their shape, form, variable plumage, and elongated tail-feathers were all familiar to me; they were none other than Richardson's Skua (*Stercorarius crepidatus*). This species has been reported from New Zealand, but I could obtain no confirmation of its occurrence in Australia * in the Sydney Museum, and it was said there that the Pomatorhine species (*S. pomatorhinus*) had never been seen south of Queensland.

In Sydney itself little native bird-life can be seen in the public parks; the English Sparrow flourishes to the exclusion of everything else. Some typically Australian species still, however, exist there, amongst which the White-eye (*Zosterops lateralis*) and the Blue Wren (*Malurus australis*) were special favourites of mine.

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* I have been kindly informed by Mr. Gregory Mathews that he has received a skin of this Skua from Chatham Island, though he has no specimens from South Australia. It has been recorded in the Australian list since 1883.

From Sydney to Fiji is a week's journey, and the unpleasant damp heat is an unwelcome change after the cool breezes of Southern Australia. After leaving Sydney and steering in a northerly direction the Mutton Bird became extremely numerous. We soon passed between some remarkable rocks, Lord Howe Island and Ball's Pyramid, situated in the middle of the Pacific. Lord Howe Island rises to a height of 2840 feet and is evidently the breeding-place of a number of sea-birds. There were great numbers of Gannets (*Sula serrator*), Noddies of two kinds (*Anous stolidus* and *A. cinereus*), Storm-Petrels (*Thalassidroma melanogaster*), and several Red-tailed Tropic Birds (*Phaëton rubricauda*); the last-named species was seen to dive from an extraordinary height with a plunge which outrivalled that of any Gannet.

A few black Boobies (*Sula cyanops*) were seen as we rapidly approached the Fiji group.

Ornithology was not the primary object of my work in Fiji; medical and microscopical investigations necessarily claimed the most of my time and attention. Being unable to obtain any local assistance, I had little leisure for collecting and preserving skins. However, I kept a daily record of the birds seen in the vicinity of my house and the garden, which, having lain uncultivated for some time, had become overgrown with thick jungle.

Although a considerable amount has been written on Fijian ornithology, yet little has been added to our knowledge within the last twenty years; still more is to be learned, I am sure, and this investigation must be quickly undertaken or else it will be too late. With the object of stimulating and directing the attention of ornithologists to this point, these notes have been written, although, I admit, they are extremely incomplete.

Two events have happened since Finsch, Hartlaub and Layard wrote, which have profoundly modified the proportional status of the local avifauna. I refer to the introduction—to my mind, an almost criminal act—of the Mongoose and the Mynah (*Acridotheres tristis*) from India. The former of these pests was introduced some twenty-five years ago to keep in check the number of rats which were destroying the sugar-cane. The result, as elsewhere, has been that the rats are still found in plenty, whereas the more defenceless birds have suffered. To such an extent has the Mongoose increased that it is now a common and obvious feature of the landscape. The rearing of domestic fowls has become almost an impossibility. Within the confines of our garden in Suva I had little difficulty in killing over thirty of these animals in less than a fortnight by means of two Mongoose-traps.

I frequently observed the Mongoose spring on and successfully catch small birds feeding in the long grass. It has taken to climbing trees, and therefore the species building in more or less accessible positions, such as the Parrots and the Lories, have suffered most. The Pigeons, which place their nests in the more slender branches, have to a much larger extent escaped. The harmless ground-snakes, once so highly prized by the Fijians as an article of food, have disappeared from Vitilevu, and it is said that even the land-crabs have shared the same fate. Luckily, however, the ravages of the Mongoose are confined at present to the two larger islands, Vitilevu and Vanualevu, where sugar is grown on an extensive scale. The lovely and fertile island of Taviuni, in spite of certain ill-advised attempts at introduction, which, happily, have so far been frustrated, still remains free from this pest and is a sanctuary to the birds peculiar to it.

The Mynah, on the other hand, was introduced with the object of destroying certain insects which bore into the sugar-cane. This it is said to have done to a certain extent. Its influence has been marked on the number of Lepidoptera, which have greatly decreased. This bird has increased enormously in numbers, especially in the western part of the group. Being of a quarrelsome disposition it drives away the native birds from the vicinity of European houses. Its range is more or less confined at present to the cultivated areas of ground and it is not seen far away from human habitations.

The Fiji group consists of a number of islands, estimated at two hundred and fifty, extending over an area five times the size of Wales—a distance of three hundred miles separating those of the western from those of the eastern group. Since the cession of the islands to the British Government in 1874, there has been a steady influx of East Indian coolies, who now number 39,000. The native Fijian, though an estimable individual in many ways and a devout Christian, is quite unsuited to any work of an arduous character. He cares little for the things around him, and beyond a knowledge of fish, shell-fish, and plants, which form the staple articles of diet, is little interested in other animate objects. From a Flying Fox to a microbe he designates all animals by the same name "*Manu Manu*"; indeed, I have often seen even intelligent natives mistake a bat for a bird.

The people in the villages relate that the art of catching wild fowl which they once possessed has died out with the last generation—since the importation of tinned meat and salmon. The paucity of native names for birds of any description testifies to the same fact.

For the native names of birds given in the course of this paper I wish to acknowledge my indebtedness to Dr. B. Glanvill Corney, I.S.O., for twenty years chief medical officer of the Colony, who possesses an unrivalled knowledge of the Fijians, their language and customs.

During the greater part of my time I was confined to one spot in the neighbourhood of Suva, the capital of Fiji, on the island of Vitilevu, but during the months of July and August I made a trip in a small schooner to the eastern islands of Vanua Vua, Lakemba, and Oneata. In December I stayed five days on the island of Taviuni.

I managed to obtain a limited number of native birds, which I kept in captivity and some of which I managed to transport alive to this country. On these I have published some notes in the 'Avicultural Magazine' for December 1911.

On March 24th, 1910, the island of Vitilevu was visited by a hurricane of exceptional severity, which did great damage. A number of birds which had not been previously seen were noted after the storm had subsided.

I propose to treat of the different species that I met with in the order of the list given by E. L. Layard in 'The Ibis' for 1876 (p. 391).

FALCO LUNULATUS (Lath.).

"Ga-ni-vatu" of the Fijians.

This bird was seen several times in the low-lying scrub surrounding the mouths of the rivers draining into Suva Harbour. Mr. Layard gives its range as confined to Vitilevu, but it is probably spread throughout the group. I saw a pair of small Falcons, possibly belonging to this species, at Loma-Loma on the island of Vanua Vua in the eastern group. They were soaring high and uttering a shrill cry, not unlike that of the Kestrel.

CIRCUS APPROXIMANS Peale.

Circus assimilis (F. & H. 1867).

On account of its depredations on the poultry-yards this species has become reduced in numbers in the neighbourhood of Suva (Vitilevu). It was commonly seen quartering the ground in typical Harrier-fashion in all the parts of the group visited. The stomach of a female which I shot in front of my house contained four newly hatched young of *Erythrura pealei*.

The native name of this species is "Reba" or "Waituitui."

[♀ adult. May 7, 1910. Cere light greenish yellow. Suva, Vitilevu.

This specimen is undergoing a complete body-moult; the tail is half moulted and the rectrices have just begun to moult, both in an irregular fashion.—C. B. T.]

STRIX LULU Peale.

"Lulu" of the Fijians.

A pair of these white Owls were seen every evening flying amongst the palm-trees in the garden at Suva, Vitilevu. The stomach of one specimen which I shot contained elytra of beetles and the remains of certain insects.

The plumage was found to harbour several hippoboscid flies.

[♀ adult. Aug. 14, 1910. Suva, Vitilevu.

This specimen is in worn plumage and is not in moult. The pure white under wing-coverts, breast, and belly are flecked. Wing 27 cm., tarsus 56 mm.—C. B. T.]

PYRRHULOPSIS SPLENDENS (Peale).

"Kaka" of the natives (a name applied to other species as well).

This species now appears to be found most commonly on the island of Kandavu, whence it is brought as a cage-bird to Suva for sale. Until a few years ago the Samoans were in the habit of making an annual pilgrimage to the island in order to shoot this bird and the "Kula" (*Calliptilus solitarius*) for the breast-plumes, with which they adorn their mats.

The late Governor, Sir Everard im Thurn, K.C.M.G., fortunately put an end to this practice. On the island of Vitilevu this species has become very scarce. In the vicinity of Suva I saw but one solitary bird, which stayed in our grounds for some time after the hurricane of March 24th. In the interior of Vitilevu I saw a few in the higher parts, but they were very wild. It is said that it was once so numerous that when maize was grown in Fiji, some thirty years ago, small boys with rattles had to be constantly employed to scare it from the crops.

I obtained three nestlings from Kandavu, which were successfully transported alive to England. According to the natives, it nests on the tops of bamboo-clumps. In plumage the young resembled the adult, but the colours were much duller and the wings and tail shorter, as in *P. taviunensis*. The colour of the iris was dark brown, a colour which changed to bright yellow when the birds were about six months old.

PYRRHULOPSIS TABUENSIS (Gmel.).

This handsome form of *P. splendens* is said to exist only in Vanualevu, but in numbers greatly diminished by the depredations of the Mongoose. I saw one individual in captivity from there; it was a very handsome bird, resembling *P. splendens* in every way, save that the prevailing colour of the breast was dark maroon instead of scarlet; the blue nuchal collar is as well marked as in *P. splendens*. From Vanualevu this species has been introduced, it is said, to the island of Eua in the Tonga group. I had one specimen in captivity obtained there. It is now in the Zoological Gardens, and resembles in every way a bird obtained in Vanualevu which has been there several years.

Pyrrhulopsis taviunensis (Layard).

This is quite a distinct species, having a much stouter head and beak than the preceding, with shorter wings and tail. The breast is maroon-coloured, and there is no blue nuchal collar. It is still quite common in Taviuni; examples shot there in December were in full moult. A pair of young birds were brought back alive to England, one of which is now in the Zoological Society's Gardens.

These young birds resembled the adult in plumage; the iris, which at first was of a deep brown colour, changed to yellow when they were seven months old. They were in full moult on their arrival in this country, when they were about five months old.

Pyrrhulopsis personatus (Gray).

This species is peculiar to the island of Vitilevu *, whence it is fast disappearing. Large flocks used commonly to be seen round Suva and on the Rewa River.

A few can still be seen in the mangrove-swamps which border the harbour at Suva. After the hurricane in March five frequented our garden for a few days. The specimen which I then shot was in moult and was covered with feather-lice, especially on the head. It is said that no young have been taken by the natives for years, and consequently the bird is now seldom seen in captivity. I possessed one which was taken as a nestling on the Rewa

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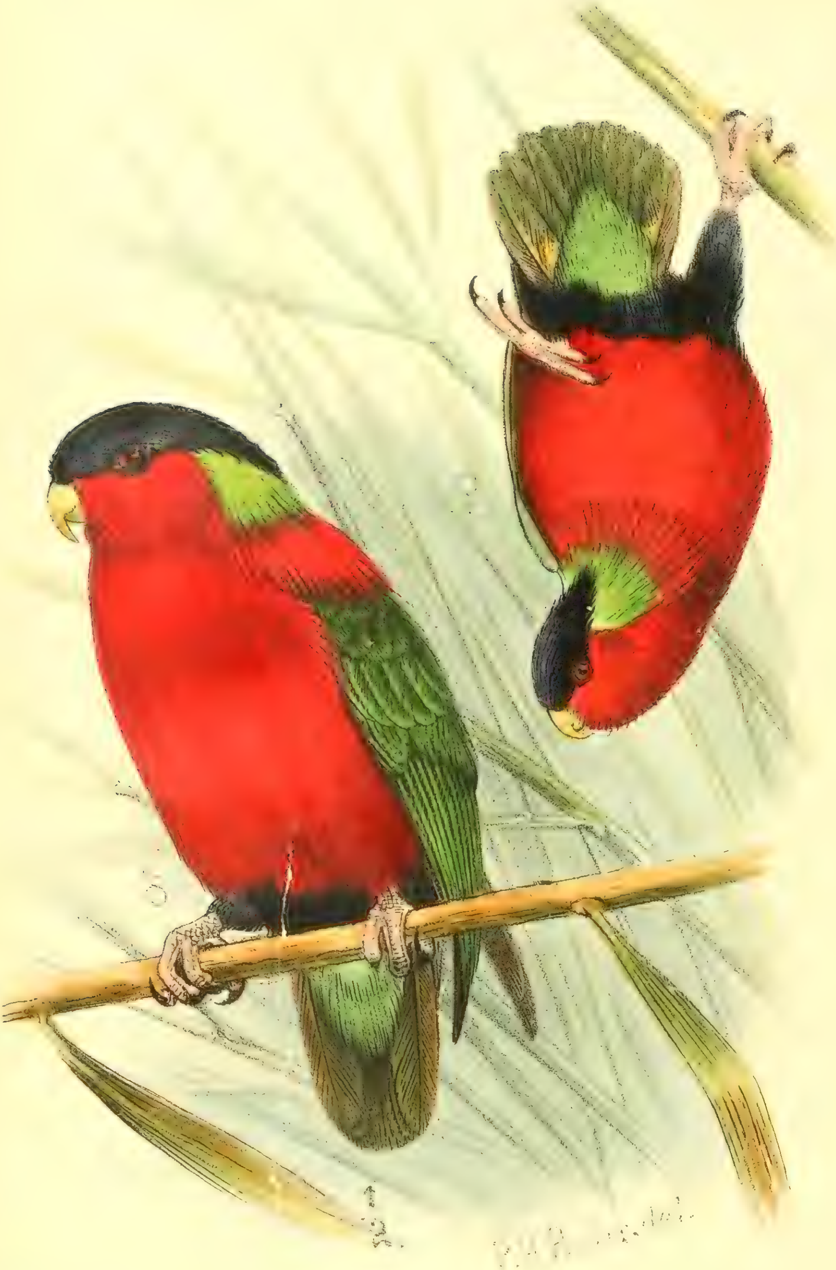
* Dr. Finsch procured a specimen alive at Levuka (P. Z. S. 1877, p. 729), where it had probably been brought from Vitilevu.



West Newman imp.

H.Gronvold, lith.

CALLIPTILUS SOLITARIUS

River several years before. I kept it in captivity for nearly a year, but it died a short time before I left. This species has a peculiar goat-like odour, which is very noticeable in the skins, and this made my bird less attractive as a pet than it otherwise would have been.

The cry is peculiarly harsh. My captive bird never learned to talk; it had a peculiar cackling note, uttered during the night-time, which was quite distinct from that of the other species.

Of the rarer birds peculiar to Fiji this will be the first to become extinct at no very distant date.

[♀ adult. March 29, 1910. Suva, Vitilevu. This specimen is just finishing its moult of body-feathers only. Wing 230 mm.; tail 233; tarsus 22; bill 25 *.—C. B. T.]

Calliptilus solitarius. (Plate V.)

Calliptilus solitarius Salvad. Cat. Birds, xx. p. 42.

The "Kula" of the natives was dubbed *solitarius* by Latham, though, like previous observers, I am quite at a loss to understand the reason, for I never saw a more sociable bird. Round the centres of civilization it is now only occasionally seen. It has a peculiarly shrill cry, sounding, in the distance, not unlike a squeaky wheel. Though it has suffered severely from the attentions of the Mongoose, large flocks still frequent the forests in the more inaccessible places in Vitilevu. In Kandavu it is said to be very abundant. It was seen in great numbers flitting about the cocoanut-palms in Taviuni and in Oneata, but not in Lakemba or in Loma-Loma. In Taviuni I obtained some nestlings in December. The nesting-holes in decaying stumps were known to the planter; some of these he exposed and closed the aperture thus made with stones, so that they could be visited year after year. They were situated on a level with the ground, so it is easy to understand how this peculiarly handsome species has suffered

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[* All measurements of bills are taken from the anterior part of the nasal aperture to the tip of the bill, to my mind the only method of obtaining uniformity.—C. B. T.]

so severely from the attentions of the Mongoose. The young were fed on milk and tea. Others were procured from Kandavu and were successfully reared. Two, which I managed to transport to England alive, are now in the Zoological Society's Gardens. Plate V. has been drawn from these specimens. In captivity they have thriven well on porridge and condensed milk, though they are very partial to fruits, feeding exclusively by means of their brush-ended tongues. The colour of the beaks, which was brown at first, changed to yellow when they were three months old, at the same time the colour of the iris became yellow. At six months old they underwent a partial moult of the breast- and head-feathers, and at eight months this moult was completed, including the feathers of the head and tail, and they then assumed the magnificent red-and-green Elizabethan ruff, so characteristic of this Lory. They are extraordinarily tame and very lively, making fascinating pets. When first procured as nestlings they were covered with white mites. They are extremely susceptible to cold. In the wild state this species appears to feed on the pollen of various flowers and especially that of the cocoanut-palm.

The nestling I procured was covered with dull grey down, among which the wing-quills and the tail-feathers were shewing. The feathers of the ruff, still encased in their sheaths, stood out round the neck like a frill, giving the bird a very odd appearance. I had no means of ascertaining what its age was when I first undertook to rear it. I kept it in a cigar-box, where it spent most of its time in sleep. It was extremely sensitive to cold, and appeared to be happiest when placed in the bacteriological incubator at 97° F. Its growth was extremely slow, and six weeks elapsed before it gained the use of its legs. By this time all the feathers, except those on top of the head, had made their appearance. I fed it with tea, milk, and sugar from my mouth, into which it would insert its whole head; this mixture it much preferred to sweetened milk alone or oatmeal gruel. It spent a great deal of time in preening itself and removing the sheaths from the growing feathers.

In soliciting food it uttered a curious note, somewhat like a loud-ticking clock, and agitated its whole body. After I had had it six weeks in my possession and it had become fully fledged, it was mortally injured by a fall out of its box on to the floor.

Hypocharmosyna aureicincta (Layard).

I did not see this species, but was told by a planter that it is still common in the mountain-forest of Taviuni.

Cacomantis infuscatus (Hartl.).

This species was seen in the neighbourhood of Suva only for a short period from the middle of April to the end of June, when it was extremely common. After that it entirely disappeared. No evidence of its nesting could be obtained, though according to Hartlaub it does breed there. It was mobbed in flight by the small birds, notably by the *Myiagra*.

Dimorphic forms were noticed, there was a dark and a much lighter variety; specimens which were shot shewed this coloration to bear no relation to sex. The generative organs of those procured in April and May were undeveloped.

[♂. April 17, 1910. Tamavua, Suva, Vitilevu.
♀? May 7, 1910. Tamavua, Suva, Vitilevu.

The first of these has the barred feathers of the neck and breast washed with rufous, the second has but a trace of rufous. Both are just completing a body-moult only; the barred feathers are new and appear in the second specimen to be replacing bronze-brown feathers of the previous plumage. Both specimens are alike on the back. Wing 127 and 128 mm.—C. B. T.]

Halcyon sacra (Gmel.).

"Sese" of the natives.

This is one of the most striking and familiar Fijian birds. Its shrill cry is one of the most characteristic sounds in the islands. It seems equally at home inland and on the sea-coast. One used commonly to visit our garden and catch insects and grasshoppers on the lawn, darting down upon them from a favourite stump. This is one of the only birds with which the natives seem to be more or less familiar.

A pair were seen constantly entering a hole in a dead stump at a considerable height from the ground during the months of May and June, where they undoubtedly had a nest. This species (or one like it) is extremely common on Vanua Vua and Lakemba, islands of the eastern group. The plumage of one specimen I procured harboured a hippoboscid fly.

[♀. Lakemba, Fiji, July 23, 1910. Wing 97 mm.; bill 34.

This, the only specimen brought home, is a puzzling bird. I went through the very poor series in the British Museum and examined those in the Tring Museum, but could find no example to match it. It is evidently, by the dull coloration and light edgings to the wing-coverts, a young bird, and Dr. Hartert tells me that it is undoubtedly *H. sacra*.

The forehead feathers are edged with buff; the crown, mantle, and scapulars are dull grey-green; the upper tail-coverts emerald-green; the wings and their coverts rather brighter than the back, the coverts edged with buff; there is a white collar of new feathers below the black collar, which again is separated from the crown by a buffish-white collar continuous with the supercilium of the same colour; whole of the under parts, including axillaries and under wing-coverts, old and new feathers white, at the side of the neck the feathers are edged with black; the ear-coverts are dull green.

The young in the British Museum differ from this specimen in having the breasts barred and the under wing buff and in being brighter in the colour of the upper parts. This specimen is moulting its body-feathers (the new ones being rather brighter than the old) and the two central tail-feathers are in the quill.

It seems that there is much yet to be learnt about the genus *Halcyon* in the Fiji group, for besides the stages of plumage and moults not being at all understood we have in this group :—(1) *Halcyon sacra*, found in all the islands (Layard, 'Ibis,' 1876); (2) *Halcyon suvensis* of Sharpe from Suva, Vitilevu, of which the type in the British Museum alone appears to be known and which I think may perhaps only be a variety of *H. sacra*; (3) *Halcyon solomonis*, obtained by M. J. Nicoll at Suva, Vitilevu ('Ibis,' 1904), and I fancy there is another in the British Museum from the same place. This anomalous condition of there being apparently three closely allied species of *Halcyon* in one island (Vitilevu) certainly wants further elucidation.—C. B. T.]

COLLOCALIA SPODIOPYGIA Peale.

Collocalia francica (Gmel.).

The Common Swift of the group was present in Vitilevu in equal numbers all the year round. It does not soar to any great height and has a feeble squealing note. In March it was found nesting in large numbers in caves amongst the soapstone rocks.

HIRUNDO TAHITICA Gmel.

"Kakahacé" of the Fijians.

This is purely a maritime species and is very locally distributed. During a ride through Vitilevu only a few were noted on the coast-line. In the district of Loma Loma on Vanua Vua there was a small colony, but they were never seen hawking over land but always over the sea. I was not able to ascertain what particular insect they were in pursuit of.

MYZOMELA JUGULARIS Peale.

This is undoubtedly one of the commonest and most attractive birds in Fiji. Its cheery call, fairy flight, and interesting feeding-habits make it a universal favourite. It is very partial to feeding on the various species of *Canna* which abound in most gardens in Fiji. Another flower to which it is particularly partial is that of a small bush, a *Frangipana*, I believe, which has been introduced into Fiji from Ceylon and is now extremely common there. In feeding it hovers over the flower in much the same manner as a Humming-bird, and then suddenly plunges in its curved bill, but whether in quest of insects or honey I was unable to ascertain. The males, which could always be distinguished by the amount and brightness of the red on their head and neck, are extremely pugnacious. In January and February the birds were in full moult.

This species was commonly seen every evening flying in flocks towards some common roosting-place; newly fledged young were seen towards the end of June.

In Loma Loma on Vanua Vua it is extremely common in the tops of the tall cocoanut-palms, whereas in the island of Lakemba, sixty miles further to the eastward, not one was seen. It was also noticed on the island of Oneata.

[1. ♂ ad. June 5, 1910. Suva, Vitilevu. Wing 58 mm.

2. ♂. July 10, 1910. Loma Loma, Vanua Vua. Wing 55·5 mm.

No. 1 has crimson on the crown, chin, and rump, but not so much as some examples; no moult. No. 2 is a much duller bird, with only a trace of yellow on the throat and no crimson on the head, some on the chin, a little on the rump; moulting two tail-feathers, but no moult elsewhere. It appears to be in juvenile dress.—C. B. T.]

Ptilotis carunculata (Gmel.).

This bird was seen only in the islands of the Eastern group—Vanua Vua, Lakemba, and Oneata,—where it was by far the commonest species encountered. It is extremely noisy and is known as the "Cocoa-nut Bird" to the white residents. Dr. Finsch records it from the island of Matuka.

Ptilotis procerior Finsch & Hartl.

This was one of the most familiar birds in Vitilevu, to which it appears to be peculiar. The male is much larger than its mate. It has a peculiar loud flute-like note, which has been imitated extensively by the imported Mynah. This species was found to be in full moult during the months of January and February. It is of a very quarrelsome disposition, and jealously drives away all intruders from its domain. While at work on the verandah of my house I was always aware of the presence of a Kingfisher or any other visitor to our garden by the behaviour of a pair of these birds on the tree opposite.

Several disused nests belonging to this species were discovered; they were flat open structures, loosely composed of roots and fibres, and placed in thick scrub about eight feet from the ground.

PTILOTIS PROVOCATOR Layard.

This species is said by Layard to be peculiar to the island of Kandavu, which lies sixty miles west of Suva. On a visit to the island of Namuka, on the coast of Vitilevu, I saw repeatedly a large *Ptilotis* that differed considerably from *P. procerior*, both in voice, size, and general behaviour, which I am inclined to refer to this species.

ZOSTEROPS FLAVICEPS Peale.

This small White-eye is an extremely common species in the neighbourhood of Suva, where it frequents the gardens in large parties. It possesses a particularly sweet twittering note. Specimens shot in January and in February were in full moult.

[♂. Feb. 12, 1910. Suva, Vitilevu. This specimen is in fresh plumage. Wing 56 mm.—C. B. T.]

ZOSTEROPS EXPLORATOR Layard.

This is a larger bird with a bright yellow breast; it is the common species seen in Taviuni, where *Z. flaviceps* appears to be less abundant than it is in Vitilevu, though both species occur there. No nests of either were found.

MYIAGRA CASTANEIVENTRIS (J. Verr.).

This is a common and familiar species round all the European houses in Suva, and a frequent visitor to the verandahs, where it catches numbers of flies. It has a peculiar way of flirting the wings and tail, and quite a distinctive alarm-note. It was also seen in Vanua Vua, Lakemba, and Oneata. A deserted nest of this species formed of moss and fibres was found in June in a tangle of creepers surrounding a tree-stump.

[♂ ad. Feb. 1910. Suva, Vitilevu. Wing 73 mm.

♀ ad. Feb. 26, 1910. Suva, Vitilevu. Iris dark brown; tarsus black.

Both these specimens are moulting body-, wing-, and tail-feathers.—C. B. T.]

MYIAGRA LESSONI Jacq. et Pucher.

A common species round Suva. It is of rather a secretive disposition, feeding on small insects concealed amongst the thick vegetation. It possesses a harsh rasping alarm-note. Newly fledged young were found in the beginning of April. This species was seen on Ovalau and Taviuni, but not in the islands of the Eastern group.

[1. o ad. Feb. 15, 1910. Bequa Is., near Suva, Vitilevu. Iris dark grey; tarsus steel-grey.

This bird is just completing a full moult of body-, wing-, and tail-feathers. Wing 69 mm.

2. Juv. April 6, 1910. Nasuviu, near Suva, Vitilevu. Wing 65·5 mm.

In general coloration this resembles the adult bird, but is rather paler, bill shorter and pale at base of lower mandible, not black; greater coverts without the blue tinge and white edgings.—C. B. T.]

PETRŒCA PUSILLA Peale.

In Vitilevu during the months of June, July, and August I frequently noted a pair of these gay-coloured little "Robins" on the tops of the highest trees. Only once did I see one on the ground. I never observed them in any other island. The male had a most delightful little song, a sweet cadence, not unlike that of the European Willow-Wren.

RHIPIDURA LAYARDI (Salvad.).

This bird has the habits of a Flycatcher. A pair were commonly to be seen by a particular hollow tree in our garden, whence they hawked for flies. This was the only pair met with in that neighbourhood. Individuals apparently referable to this species were seen in Loma Loma on Vanua Vua, where, according to Layard, it does not occur.

LAMPROLIA VICTORIÆ Finsch & Hartl.

This species is known to the planters on Taviuni as the "Satin Flycatcher." It has been driven away from the more cultivated areas by the march of civilization, but is said to be still common in the more mountainous districts, where I had not the opportunity of pursuing it.

Lalage pacifica (Gmel.).

This is by far the commonest and most familiar native bird in Vitilevu. It retains the dull barred plumage all the year round. In the months of January and February it is in full moult. The plumage of both sexes is alike; the young in their first moult accompanying their parents resemble the adults in plumage, but are darker. The forehead-feathers of the adult bird are erectile.

These birds are of a noisy disposition, constantly chasing one another in small parties from tree to tree. They feed on the ground, hopping in passerine fashion. The nesting-season commences in September, when the rain-trees are bare of leaves. The nest, which is a plain cup-shaped structure formed of fibres, is placed in a prominent position, and those examined contained one or two young. No birds referable to this species were seen in Loma Loma on Vanua Vua, or in Lakemba.

Two individuals were shot near my house when engaged in building a nest.

I paid a short visit to the little-known island of Oneata in August; I was only there a few hours. I noticed, however, a species of *Lalage* of much larger size and whiter breast than any I had seen in Vitilevu. Not only was it different in appearance, but the note was much louder and shriller than that of the smaller species. I never saw any specimens in Vitilevu with a white breast, all there being barred.

A nest was found in a Pandanus, with which the higher parts of the island are abundantly clothed; it was situated about five feet from the ground, and contained two hard-set eggs. These were green in colour, marked with dark blotches, evenly distributed. The nest and eggs were sent to Dr. Ticehurst and the brooding bird was secured.

[1. ♀. Sept. 26, 1910. Suva, Vitilevu. Iris hazel; feet blue-black. Wing 86 mm.; tail 60; bill 10 5.

2. ♀. Sept. 14, 1910. Suva, Vitilevu. Iris hazel; feet blue-black. Wing 87·5 mm.; tail 59·5; bill 11.

3. ♂ juv. Feb. 12, 1910. Suva, Vitilevu. Wing 85 mm.; tail 61; bill 9.

4. ♀. July 27, 1910. Oneata Island, Fiji. Iris hazel; feet blue-black; bill brown, lower mandible hazel (dull white in dried skin). Wing 96 mm.; tail 68; bill 12.

5. One egg from nest of No. 4. Pale greenish blue, zoned and spotted with dark brown. 24 × 17 mm.

1 is in worn plumage, under surface barred; upper surface dark brown; 2 is like 1, but blacker on the back and the tail in moult (? accidental).

3 is a young bird of the previous year; it is undergoing a body-moult, and when this is completed it will resemble 1. The remains of the juvenile plumage are to be seen on the mantle in some barred brown and white feathers and in the rufous edgings to the wing-coverts.

Dr. Bahr's field-notes suggest that in Oneata there is a distinct species of *Lalage*, and the female specimen obtained from that island differs considerably from a breeding female obtained in Vitilevu in being larger, blacker on the back, and having the under parts pure white and not barred with black. However, I find in the British Museum and at Tring specimens with white under parts from Samoa, Tongatabu, and at least one from Vitilevu, with which this specimen corresponds fairly well, except that the measurements are much too large for a female and correspond closely with that of a male, but Dr. Bahr assures me that it is sexed correctly.

Layard ('Ibis,' 1876, p. 144) records that this species is in the juvenile plumage all the year round, and breeds in it, and his statement would be borne out by Dr. Bahr's notes. Furthermore, Finsch (P. Z. S. 1877, p. 725) remarks that "adult and fully coloured" birds, which he goes on to state have the whole under surface pure white, are very rare in collections; of these he had three specimens, two were males from Tongatabu, and one a female from Matuku, Fiji.

From the poor series of this species available for examination it is impossible now to elucidate this problem further, but it is probable that *Lalage pacifica* breeds at the end of its first year in a plumage in which both sexes are barred on the under parts, and that at the end of the second autumn the under parts become white. It possibly takes longer to become *fully* adult, as I notice some white-breasted birds are pure black on the mantle and others more brown-black. It is advisable for future collectors to get a large series of this species in moult.—C. B. T.]

Pachycephala sp. inc.

I am inclined to think that the members of this genus which have been described from Vitilevu must have become very scarce of later years; specimens were collected near Suva by Mr. M. J. Nicoll during his short stay there in 1903. Although constantly on the look-out for these bright-coloured birds during my year's stay in Vitilevu, I never met with anything resembling them, and it is inconceivable that I should have missed a comparatively large bird with a breast of such a rich yellow colour.

Pinarolestes vitiensis (Hartl.).

This is an inconspicuous brown bird of apparently very silent habits. It was seen only occasionally in Vitilevu, perched in Wryneck fashion on the topmost branch of some dead and wizened tree.

[○. May 2, 1910. Suva, Vitilevu. Iris hazel; feet indigo-blue. Wing 82 mm.

This specimen is typical and in fairly fresh plumage.—C. B. T.]

Pinarolestes maxima Layard.

On one occasion I saw three specimens of this much larger species in a tree in front of the house; my attention had been drawn to them by the behaviour of a *Ptilotis procerior*. I procured one specimen, but I never saw these birds again.

[♀. April 24, 1910. Suva, Vitilevu. Wing 101 mm.; tarsus 25; bill (from edge of forehead-feathers) 25; depth of bill at nostrils 9, width 7. Tip of bill pale. In fairly fresh plumage.

This species was described by Layard from a specimen obtained in Kandavu and said to be a male ('Ibis,' 1876, p. 198), though the label on the type specimen now in the British Museum bears no sex. The bird is apparently very rare, as there is only one example (the type) in the British Museum, though a bird there labelled *P. nigrogularis* ♀ I could not distinguish from the type of *P. maxima*. On writing to Dr. Hartert at Tring, he informed me that there is no example there of *P. maxima,* and that the female of *nigrogularis* has a *black* throat like the male; so it seems to me that this other specimen in the British Museum is wrongly labelled and is only another specimen of *P. maxima.*—C. B. T.]

Artamus mentalis Jard.

This fine Wood-Swallow is common near Suva, having found the telegraph- and telephone-wires congenial to its habits. It possesses considerable powers of flight, and may constantly be seen gracefully soaring above the forest. I am inclined to believe that it is a partial migrant in Vitilevu. It was much more commonly seen during the hotter weather, November to April, than in the cooler months. This species was also noted in Vanua Vua.

Aplonis vitiensis Layard.

This is about the only musician of a particularly unmusical avifauna; it possesses a not unpleasing Thrush-like whistle. Not a very conspicuous species, it confines its range to the tops of the tallest trees and was never seen feeding on the ground. It is common in Vitilevu and was seen on Vanua Vua, but not in the islands of Lakemba or Oneata.

[♂. April 28, 1910. Tama Vua, Suva, Vitilevu. Wing 106 mm.

♀. April 28, 1910. Tama Vua, Suva, Vitilevu. Wing 101 mm. Iris hazel; tarsus hazel.

Both birds are typical and in fairly fresh plumage; those

I have examined, obtained in December, are in much worn plumage. The sexes are very similar, but the female specimen has less gloss on the back and the whitish edges to the secondaries rather less defined.—C. B. T.]

ERYTHRURA PEALEI Hartl.

Fijian "Gigi."

This attractive Finch is common in Vitilevu. It is said to occur, but to a much more limited extent, in Vanualevu and Taviuni. Specimens shot in January, February, and March were in full moult, and the immature birds of the year were beginning to assume the red head of the adult plumage. I was unable to distinguish any difference between the sexes. They feed to a great extent on grass-seeds, though the crops of those shot contained some small green caterpillars in addition. The breeding-season apparently extends over July and August. In September and October young birds with yellow bills and green heads were commonly seen in company with their parents. Family-parties consisted generally of three young birds, together with the adults. We had no difficulty in trapping them at this time. I kept a number in captivity, to which they seem to be particularly well adapted. Over twenty were brought alive to this country, where they proved themselves to be hardy and capable of nesting in confinement. An account of these, together with a coloured plate, has appeared in the 'Avicultural Magazine' for December 1911. These birds in captivity underwent a second annual, but partial, moult in October.

There was one specimen the head and face of which remained of a peculiar bluish-green tint even after several moults. It had a few red feathers at the base of the bill. This specimen is now in the Zoological Society's Gardens, and there is a skin somewhat resembling it in the British Museum.

Dr. Finsch has described (P. Z. S. 1878, p. 440) another species of *Erythrura* from Vitilevu under the name of *E. kleinschmidti.* This is a larger bird with a blue-black head and a yellow bill. One specimen only was procured and was said to be an adult male; it has apparently never been seen since. I would venture to suggest, however, that it may be a freak of a similar nature to the bird described above.

[♂ juv. Aug. 11, 1910. Suva, Vitilevu. Wing 57 mm.
♀ ad. Aug. 11, 1910. Suva, Vitilevu. Wing 56 mm.
♀ ad. Aug. 11, 1910. Suva, Vitilevu. Wing 57 mm.

These specimens are typical. The adults are in fresh plumage, one still having a few body-feathers in quill; the young bird shews no moult. Either the breeding-season is an extended one or the juvenile plumage is worn for some time, as I find in the British Museum a specimen in that plumage shot on February 28; on the other hand, there are some getting the red head in October and November. —C. B. T.]

MEGAPODIUS sp. inc.

There is a general belief amongst Europeans in Vitilevu that a Megapode similar to that found in Ninafou (*M. stairi* Gray) lately existed there, and has been exterminated by the Mongoose. The attention of ornithologists not having been seriously drawn to the subject, I append a valuable note which I have received from Dr. B. Glanvill Corney:—

"There is, or was until eight or ten years ago, a bird in the interior and northern coast tracts of Vitilevu called the 'Săsă'; described as having speckled plumage and running along the ground among reeds, cane-brakes, and undergrowth. By 'reeds,' in Fiji, are meant light canes—*Eulalia japonica*—not rushes. The Săsă did not fly, and seems to have been a mound-builder. I once met with some dogs in a remote mountain village that the natives had specially trained to hunt the Săsă, which they described as *Koli dankata sasa*, i. e. Săsă-catching dogs; but I never succeeded in seeing a Săsă, nor did my friend Mr. Frank R. S. Baxendale, who, as Assistant Resident Commissioner in the hill districts, lived for more than a year in the Săsă country. His successor, Mr. Georgius Wright, however, had several living specimens in his possession for some time, and told me that he considered they were Megapodes of the same or of an allied species to those met with in the island of Ninafou (Boscawen Island) and in Samoa. Some natives likened them to Guinea-fowl, but said they were not so large as the latter, and that they laid a single egg. Between the years 1876 and 1905 they were still comparatively common and well known in the locality mentioned (where there are only a very few Europeans)."

GALLUS BANKIVA (Temm.).

According to Layard the wild Jungle-fowl of Fiji, the familiar crow of which is such a characteristic feature in these palm-clad islands, was introduced by Captain Cook. Dr. Corney, on the other hand, thinks that fowls existed in Fiji long before the coming of Captain Cook. It is pointed out that on the advent of the missionaries wild fowls were found in every island of the group. The bird is called "Toa" by the natives, and according to Dr. Corney "a small variety existed in Tahiti when the first ship (H.M.S. 'Dolphin') discovered it in 1766. The story that Quiros discovered Tahiti in 1606 is a gross error, but is repeated in most encyclopaedias and similar works." If the fowl had been introduced into Tahiti in 1766, it is most likely that it would have reached Fiji at some earlier period. Moreover, there is no evidence that Cook did more than touch at the island of Vatoa, the south-easterly limit of the Fiji group. The introduction of the Mongoose sealed the fate of the Jungle-fowl in Vitilevu. On the small islands off the coast of Vitilevu it is abundant, especially on Bequaa and Mokagai, whence I was presented with a pair of these birds. Though much harassed by the Mongoose we managed to keep them alive for a year and several young were raised. The male, a typical Jungle-cock in appearance, became very familiar, and with difficulty could be kept out of the bedrooms.

On Taviuni these birds are still abundant; the planters are in the habit of shooting them with a rifle, using a tame fowl, which is trained to crow, as a lure.

Ptilonopus perousei (Peale).

This beautiful little Dove is still to be seen on the outskirts of Suva feeding on the berries of a small shrub, the name of which I do not know. There is great difference between the sexes, the coloration of the upper parts of the male being white, claret, and greenish yellow, while the female is almost uniform green. The breeding-season appears to begin about the end of September. In places where the birds were said to be common they now exist in sadly diminished numbers. I attempted to keep one which I winged, but it refused all food in captivity.

The "coo" of this bird is Dove-like, beginning in a high *crescendo* it ends in a series of gasps.

[♂ ad. Sept. 26, 1910. Suva, Vitilevu. Iris light hazel; beak and feet emerald-green. Testes large. Wing 128 mm.

♀ ad. Sept. 26, 1910. Suva, Vitilevu. Iris chrome-yellow with a vermilion tinge; beak and feet emerald-green. Wing 126·5 mm.

♀ ad. Nov. 26, 1910. Suva, Vitilevu. Wing 128 mm. All are in fresh plumage, with a few body-feathers in quill.—C. B. T.]

Chrysœnas luteovirens (Hombr. & Jacq.).

Fijian "Coge."

This is the Barking Dove. I was mystified for a long time by its strange call, which almost exactly simulates the bark of a dog. Moreover, it is extremely difficult to find the utterer of the bark, as the bird has undoubtedly ventriloquial powers. The male is a beautiful orange-yellow in colour, and is rarely seen, as it keeps hidden amongst the dense foliage. This yellow plumage, moreover, harmonizes almost exactly with the dead leaves of the bread-fruit tree which it frequents. I managed to procure two males on the outskirts of our garden during the middle of June, at which time the pairing-season appeared to be in full swing.

When barking the male sits on top of a low tree and throws out the crop to its full extent; the much smaller and green mate sits underneath. The female does not utter any sound, so far as I could ascertain. The body of a female which I skinned was covered with a layer of solid green fat of a peculiarly sweet odour; this fat was most difficult to remove. There was very little fat on the male specimens procured, but it was yellow in colour.

I heard this species commonly in the interior of Vitilevu, especially in the higher and more mountainous portions. It was not seen in any of the other islands visited.

A young bird of a uniform dull green colour, but recently fledged, was captured in August. An attempt to rear it proved unsuccessful.

[♂ ad. June 14, 1910. Suva, Vitilevu. Beak and feet emerald-green; circumorbital skin and line to base of bill very bright green. Wing 117 mm.

♂ ad. June 17, 1910. Suva, Vitilevu. Beak and feet emerald-green; circumorbital skin and line to base of bill very bright green. Wing 121 mm.

♀ ad. April 6, 1910. Nasuviu, Vitilevu. Wing 116 mm.

The males are in perfectly fresh plumage, the female in slightly worn plumage. Not only does the female lack the golden colour, but also the lanceolate feathers seen on the neck and upper parts of the male.

Dr. Bahr's observation on the coloration of the fat in a male and female of this species is a further interesting instance of the correlation between the colour of the fat and the colour of the plumage or soft parts in some species of birds, which I have for a long time been cognisant of and have referred to in 'The Ibis' for 1911 (p. 746). The whole subject is very little known and still less understood, and would repay investigation by those who have the opportunity.—C. B. T.]

Chrysœnas victor Gould.

The beautiful Golden Dove of Gould I did not see, though I understand from planters in Taviuni that it is still frequently met with in the interior. I was not fortunate in coming across any during my short stay on that island.

COLUMBA VITIENSIS Quoy & Gaimard.

Fijian "Soge dina."

This is a particularly clumsy and sluggish bird. It is still extremely common, very tame, and confiding. It is partially migratory, and appears in great numbers round Suva in the months of April and May, when it is shot extensively for the table. After the hurricane of March 24th a great many appeared in a partly dazed condition, and could easily be knocked over by sticks or stones. A very wise edict was issued by the Governor prohibiting their slaughter. In Taviuni they are said to appear around the plantations about August and September every year and then to vanish again. In Loma Loma, on Vanua Vua, I saw several which had been kept for years in captivity and had become very tame and docile. I could obtain no details regarding the breeding-habits of this species. It has a loud "coo," not unlike that of the Stock-Dove, only much louder and harsher.

CARPOPHAGA LATRANS Peale.

This large slate-coloured Pigeon was seen commonly in the island of Lakemba. It possesses an extremely loud call, quite unlike that of any other member of its tribe with which I am acquainted. I did not see any Pigeons corresponding to this in Vitilevu.

CARPOPHAGA PACIFICA (Gmel.).

This species is common in the higher parts of Vitilevu, where many were seen during a trip into the interior. It is much prized for eating purposes, and consequently has vanished from the neighbourhood of the European settlements. I have one specimen in captivity which I obtained from Samoa; it has a prominent knob at the base of the bill. It refuses all hard food and will only live on bananas. Its voice is very loud, and can be heard at a considerable distance. I saw some birds belonging to this species in Loma-Loma on the island of Vanua Vua, but not in the other islands of the eastern group.

PHLEGŒNAS STAIRI VITIENSIS Wigl.

Phlegœnas stairi (Gray).

Fijian "Soge loa."

A pair of these birds was seen once only. They settled in some trees near my house soon after the hurricane in March 1910.

HYPOTÆNIDIA PHILIPPINENSIS Linn.

Rallus pectoralis (Less.).

Two specimens only of this species were seen in a mangrove-swamp at Loma Loma in the island of Vanua Vua. They were extremely wary, and I was unable to obtain a specimen.

Of the Rails I doubt whether any remain alive in Vitilevu at the present day. I was told by residents that since the introduction of the Mongoose all these birds had vanished. Some European residents even remember having taken their eggs and nests ten or fifteen years ago at the mouths of the various creeks, when Rail and Duck shooting used to constitute one of their main diversions.

Layard tabulates three species as having been found in Vitilevu, namely, the species just mentioned, *Eulabeornis pœcilopterus* (Hartl.), and *Porzana plumbea* (Gray) [*Ortygometra tabuensis* (Gmel.)]. Of these the second was peculiar to Vitilevu, and is probably now extinct. The Fijian name for the Rails is "Bici."

PORPHYRIO VITIENSIS Peale.

Porphyrio samoënsis Peale.

Porphyrio smaragdinus Temm.

Fijian "Tere."

In Vitilevu this species has probably shared the same fate as the Rails.

Only one specimen was seen in Taviuni, where, however, it is said to be still common.

CHARADRIUS FULVUS Gmel.

The Eastern Golden Plover was met with in large flocks, evidently composed of migratory birds, on the upland pastures in Vitilevu, in the months from September to December. In Taviuni flocks were seen visiting the clearings in the bush. I managed to shoot several, which were much prized by the planters as a welcome addition to their larder.

DEMIEGRETTA SACRA Gray.

Ardea sacra Gmel.

The Fijian "Beló" is an extremely common bird in the mangrove-swamps and on the coral-reefs of every island I visited. Many individuals in the white and in the transitional stage to the slaty-grey mature plumage were seen. The natives consider this bird sacred, and I failed to induce a Fijian who was carrying a gun to shoot a specimen for me. He told me that the fine, according to Fijian law, was £6.

ANAS SUPERCILIOSA Gmel.

The Fijian "Ga" has fallen an easy prey to the Mongoose in Vitilevu. At the mouth of the Rewa River, where until comparatively recently it existed in great numbers, I only saw a pair. I was told that it is still numerous in Ovalau. None were seen on the large inland lake which is the pride of the island of Oneata. Duck-shooting as a means of diversion in Vitilevu is now considered a thing of the past.

I did not have much opportunity of studying the shore-birds, and the few I saw were so extremely wary that they did not suffer me to approach within gunshot. I several times saw a bird like a Godwit, probably *Limosa novæ-zealandiæ* Gray, of which the native name is "Dolidoli."

Of the sea-birds Berg's Tern (*Sterna bergii*) and the Mutton Bird (*Puffinus brevicauda*) were most commonly seen. On the whole sea-birds are extraordinarily scarce. During a sail of three days' duration across the Koro Sea only a few Frigate Birds (*Fregata aquila*), Mutton Birds, Boobies (*Sula cyanops*), and the White-faced Storm-Petrel (*Pelagodroma marina*) were met with.

After the hurricane of March 24th a great many Frigate Birds were driven inland in a very distressed condition*.

A number of Tropic Birds (*Phaĕton æthereus*) (Fijian, "Lawedua") were seen in July off the coast of Vanua Vua, where they were probably breeding.

Dr. Corney has kindly supplied me with the correct pronunciation of the native names of some of the Birds, which I append, as it may prove useful to others who collect in this group of islands :—

Qiqi	is like	Ng-ghĭ-ng-ghĭ.
Kaká	,,	kăhkāh.
Beló	,,	mbel-ō.
Soqe	,,	sŏng-ghi.
Ga	,,	nga (*ng* as in singing).
Lawedua	,,	lah-wey-ndua.
Tere	,,	terrey.
Coqe	,,	thong-ghi (*th* as in *th*at).

The rest are easy, if you remember that

c = th as in *th*at or fa*th*er—not as in *th*ink.
b = mb.
d = nd.
g = ng as in si*nging* or in si*ng*er, never as in fi*ng*er.
q = ng as in fi*ng*er : vowels always as in Spanish or Italian.

APPENDIX.

List of References to the Fijian Avifauna.

HARTLAUB, G.—Ibis, 1864, p. 232. Provisional List of a Collection of Birds in the Feejee Islands.

HARTLAUB, G.—Ibis, 1866, p. 171.—On Five new Species of Birds from the Feejee Islands.

FINSCH, O.—Ibis, 1873, p. 733. On *Lamprolia victoriæ*, a most remarkable new Passerine Bird from the Feejee Islands.

LAYARD, E. L.—P. Z. S. 1875, p. 149. Descriptions of some supposed new Species of Birds from the Fiji Islands.

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* The Fijian name for the Frigate Bird is "Kasaga" and for the Mutton Bird "Rikoriko."

Layard, E. L.—Ibis, 1876, pp. 137, 152.—Notes on some little-known Birds of the new Colony of the Fiji Islands; & p. 387, Description of a new Species of Flycatcher (*Myiagra*) from the Fijis, and some Remarks on the Distribution of the Birds found in those Islands.

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XV.—*Notes on the Ornithology of Corsica.*—Part IV.

By the Rev. Francis C. R. Jourdain, M.A., M.B.O.U.

[Concluded from p. 82.]

164. Phalacrocorax carbo (L.). Cormorant.

Neither Wharton nor Whitehead make any mention of this species, and Giglioli does not include it in his list of Corsican birds in the 'Primo Resoconto' (p. 638), which was published in 1890. Backhouse saw Cormorants or Shags flying over the Gulf of Ajaccio in winter, but was unable to determine the species. Martorelli ('Gli Uccelli d'Italia,' p. 318) states that it is plentiful along the northern coast of Sardinia and in the Straits of Bonifacio, while Giglioli ('Avifauna Italica,' Secondo Resoconto, p. 416) states that he has seen this species at Ajaccio and on the Lake of Biguglia, near Bastia.

165. PHALACROCORAX GRACULUS DESMARESTI Payraud. Mediterranean Shag.

Phalacrocorax desmarestii Payraudeau, Ann. Sci. Nat. (1) viii. p. 464 (1826—Sardinia).

Local name : *Margone.*

A fairly common resident on the rocky islets near the coast. Parrot and Wharton record it as present in the winter months. It is a very early breeder, for Whitehead found the young full-grown and swimming about with their parents on May 2; and though I visited their breeding-places several times from May 7 onward, I found only one nest which still contained young birds. This was probably due to the earlier layings having been taken by the fishermen. The young, easily distinguishable by their white under surface, were swimming about in shoals, and it was amusing to see them dive simultaneously when shouted at from the boat. In many cases the birds nest under the big boulders on the brush-covered hillsides of the islands, but some breed in the natural crevices on the sea-cliffs. The clutch consists of only two or three eggs, and the average size of twenty-six Corsican eggs, taken in March and April, is 60·13 × 37·07; max. 69·7 × 38 and 61 × 40, min. 54·2 × 34·3 mm.

PELECANUS sp. inc. Pelican.

[Whitehead was told by several Corsicans that Pelicans visited the island in winter, while Giglioli regards them as accidental visitors, and suggests *P. onocrotalus* as the species in question.]

166. HYDROBATES PELAGICUS (L.). Storm-Petrel.

Giglioli describes this species as common at sea between Bastia and Capraia. Although not recorded by any other observer, it, nevertheless, breeds in small numbers on the rocky islets off the coast, but owing to its crepuscular habits has hitherto escaped notice. I obtained a single egg early in June from an islet off the east coast.

167. Puffinus kuhlii kuhlii (Boie). Mediterranean Shearwater.

Local name: *Guaia.* Boie's original description of this species was taken from a Corsican specimen ('Isis,' 1835, p. 257), and as the Atlantic race is larger and lays a much bigger egg, besides differing in shape of bill and in having less white on the wings, it is rather surprising that Mr. Godman does not recognise the distinctness of the two races in his 'Monograph of the Petrels.' Whitehead found it breeding in fair numbers on the small islands near the coast. The nesting-time is much later than that of the Levantine Shearwater, and though some birds were found under the boulders on May 2, the eggs were quite fresh on June 2. The nest consists of a few feathers, bits of stick and seaweed, and is placed under a boulder or large rock, often surrounded by scrub, at some distance from the water. The birds bite savagely when handled. Average size of nine Corsican eggs, 69·91 × 45·74; max. 73·2 × 44·4 and 69·9 × 48, min. 66·7 × 47 and 70 × 44·2 mm. On the other hand, thirty-three eggs of the Atlantic race average 75·48 × 50·27 mm. Parrot observed this species on the Isles Sanguinaires and in the Gulf of Sagone. Shearwaters are common at sea between the Isles d'Hyères and Cap Corse, but are generally too far off to be identified with certainty. They must, however, belong to this or the next species.

168. Puffinus puffinus yelkouan (Acerbi). Levantine Shearwater.

This species also breeds in fair numbers on the islets off the coast, but its nesting-season is much earlier, and Whitehead found that the eggs taken by him on May 2 were almost hatched, some of them being already chipped. All the nests examined by him were under rocks only a few feet above high-water mark; but on May 9 we found a young bird under a huge mass of rock, quite twenty feet above the sea. Although we were unable to get the bird out to examine it, the date was far too early for the larger species. Backhouse describes it as quite numerous in the Gulf of Ajaccio (in January), and sometimes brought into market, so that it is evidently sedentary.

[BULWERIA BULWERII (Jard. & Selby). Bulwer's Petrel.

A specimen of this species was found on board a lightship on June 3, 1898, between Corsica and Genoa. It had evidently flown on board during the night in an exhausted condition, attracted by the light (Giglioli, Secondo Resoconto, p. 677).]

169. PODICEPS CRISTATUS L. Great Crested Grebe.

A winter visitor in fair numbers to the lagoons on the east coast. Jesse obtained a specimen from Lake Biguglia, and one shot by Whitehead on March 7 was in good breeding-plumage.

170. PODICEPS NIGRICOLLIS Brehm. Black-necked Grebe.

A winter visitor in much greater numbers than the preceding species to the east coast lagoons, where probably a few remain to breed, as Whitehead shot one of a pair in full breeding-plumage on April 19, and saw another pair on May 18. Wharton saw a few in March, but met with none in April.

[PODICEPS GRISEIGENA (Bodd.). Red-necked Grebe.

Two specimens are recorded by Giglioli from Elba, on June 1 and April 9, 1878 (Secondo Resoconto, p. 695). Under the heading of *Colymbus* sp. ?, Parrot records three small Divers, about the size of this species, met with at sea east of the Isles Sanguinaires on March 28, and vainly pursued in a sailing boat (Orn. Jahrb. 1911, p. 36).]

171. PODICEPS RUFICOLLIS (Pall.). Little Grebe.

A winter visitor, not uncommon. Recorded from Lake Biguglia (*Jesse*), on the east coast up to April 24 (*White-*

head), and once from the Campo de l'Oro (*Backhouse*). Giglioli met with it in October.

172. Columba palumbus L. Ring-Dove.

Local names: *Colombo collado* (Giglioli); *Columba collata.*

Resident in the mountain forests, but not in great numbers; very plentiful in winter on the low ground, so probably many are winter visitors from the Continent. Parrot records large numbers in the Ajaccio market (thirty to forty on January 8), and was inclined to think them darker than continental birds. He met with a few in the chestnut woods, but those which were found breeding by Whitehead, Playne, and ourselves were in the pine-forests from about 2500 ft. upwards.

173. Columba œnas L. Stock-Dove.

One was picked up by Giglioli near Ajaccio, partly devoured by a Falcon, on October 5, 1877. Parrot records two in the Ajaccio market on January 17 and one on February 2.

174. Columba livia Gm. Rock-Dove.

Local names: *Colombo petraiolo* (Giglioli); *Columba petrajola.*

A common, but rather local resident, breeding not only on the islands and in caves by the sea, but also in precipitous rocks among the mountains inland, and in ruined towers. We found fresh eggs on May 14, and Whitehead on May 18. When disturbed from the nest the sitting bird will often squeeze her way out through an alternative exit, a few feet away from the usual entrance. A male bird obtained by Parrot was remarkably small, having a wing-measurement of only 204 mm., tail 128 mm., and was lighter in colouring than Balkan specimens.

175. Streptopelia turtur (L.). Turtle-Dove.

Local names: *Colombi* (Giglioli); *Turturella.*

A very common summer visitor to all the lower ground, but not ascending to any height in the mountains. Whitehead noted its first arrival on April 16, 1883, and April 22, 1884, and Wharton on April 27. Eggs may be met with from

May 17 onwards. It leaves the island about the end of September according to Giglioli.

176. Hæmatopus ostralegus L. Oyster-catcher.

Whitehead records this species as once seen at the mouth of a river on April 26.

177. Œdicnemus œdicnemus (L.). Stone-Curlew.

A few pairs are resident in the Ajaccio district. Whitehead saw several on the sandy plain at the head of the Gulf on June 21, which must have been breeding, and Parrot records one from the Ajaccio market on February 18, and observed two pairs on the Campo de l'Oro on March 7.

178. Charadrius morinellus L. Dotterel.

Recorded by Giglioli as seen near Corte on October 5 1889.

179. Charadrius hiaticola L. Ringed Plover.

Wharton twice met with a party of four (perhaps the same birds) near Biguglia on April 22 and also on the 30th. The only individual which I saw was on a sandy spit on the east coast on May 8.

180. Charadrius dubius Scop. Little Ringed Plover.

Whitehead shot one on April 27 in company with two or three others, and Giglioli records the bird as seen in small parties along the Ortolo on September 28.

181. Charadrius alexandrinus L. Kentish Plover.

Resident in small numbers, chiefly on the east side, where suitable breeding-ground is available. Whitehead saw family-parties of five during the winter, and met with a few pairs breeding in every sandy bay; eggs were found on April 23 and 28. We saw a few on the sandy bars between the lagoons and the sea in May.

182. Charadrius apricarius L. Golden Plover.

A common winter visitor. Whitehead found it abundant on the east coast in winter, and Parrot mentions two identified on March 1 among Lapwings, while a flock of forty-five was seen in the Campo de l'Oro six days later.

[The Grey Plover, *Squatarola squatarola* (L.), which is a winter visitor to Sardinia, probably also occurs in Corsica, but has not yet been definitely recorded.]

183. VANELLUS VANELLUS (L.). Lapwing.

A common winter visitor. Whitehead found it very common on the east coast, and Backhouse and Parrot record large flocks on the Campo de l'Oro. None were seen after March 14 by Whitehead, and Parrot states that they had left on the 17th.

184. ARENARIA INTERPRES (L.). Turnstone.

Giglioli records this species as killed at Cape Pertusato on September 25.

185. MACHETES PUGNAX (L.). Ruff.

Jesse shot an example on February 1 near Lake Biguglia, and Whitehead saw several small parties between April 15 and 28. We met with a flock of about twelve non-breeding birds in the east coast lagoons on May 31, and on May 15 saw others which, I believe, belonged to this species.

186. CALIDRIS LEUCOPHÆA (Pall.). Sanderling.

Giglioli records this species as killed at Cape Pertusato on September 25.

187. PELIDNA ALPINA (L.). Dunlin.

Whitehead noted a few in winter on the east coast, and shot one on March 16; Giglioli records this species as seen at Isola Rossa on October 7.

188. PELIDNA FERRUGINEA (Brünn.) (*P. subarquata* auct.). Curlew-Sandpiper.

Occurs on passage in small flocks of from three to fifteen, according to Whitehead, who shot three specimens on May 8, 1883 (one in summer plumage), and noticed a large flock (all in summer plumage) on May 16, while on May 7, 1884, he again met with a small flock and shot one bird.

189. PELIDNA MINUTA (Leisl.). Little Stint.

Whitehead only saw three or four, and shot a pair on May 7.

190. Pelidna temmincki (Leisl.). Temminck's Stint.
A pair seen and one specimen shot by Whitehead on May 7.

191. Tringa hypoleuca (L.). Common Sandpiper.
A fairly common winter visitor, but though Giglioli suggests that a few are resident (Secondo Resoconto, p. 596), there is at present no record of any being observed after the end of April. Chiefly met with on the Campo de l'Oro and east coast.

192. Tringa glareola L. Wood-Sandpiper.
Occurs on passage: Whitehead first observed it on April 12, and from time to time onward till May 28.

193. Tringa ocrophus L. Green Sandpiper.
A few occur during the winter months. Giglioli observed this species on October 9; Wharton saw a few and shot one at Biguglia in April, and Whitehead noticed a few in winter, besides one as late as May 28.

194. Tringa totanus (L.). Redshank.
Whitehead saw a few in winter on the lagoons, the last on June 2.

195. Tringa nebularia (Gunner.). Greenshank.
Whitehead saw a few in winter and noticed a good many passing over on May 8, in 1883 and 1884.

[The Red-necked Phalarope, *Phalaropus lobatus* (L.), has been recorded from Elba, but not as yet from Corsica (*cf.* Secondo Resoconto, p. 582).]

196. Himantopus himantopus (L.). Black-winged Stilt.
Jesse records one shot at Aleria, and Whitehead saw one in company with some Greenshanks on April 30.

197. Limosa limosa (L.). Black-tailed Godwit.
One was seen in company with Greenshanks on April 23 by Whitehead.

198. Numenius arquata (L.). Curlew.
Whitehead describes the bird as fairly common in winter; it was last seen on May 11.

199. GALLINAGO MEDIA (Lath.). Great Snipe.

Whitehead shot one of three met with on March 25.

200. GALLINAGO GALLINAGO (L.). Common Snipe.

Local name: *Beccazino.*

A common winter visitor, but most numerous at the periods of double passage, in November and March. The latest bird was noted on April 30 by Whitehead.

201. GALLINAGO GALLINULA (L.). Jack Snipe.

A winter visitor; according to Whitehead the predominating species on the east coast and common in February. Last seen on March 27.

202. SCOLOPAX RUSTICULA L. Woodcock.

Local names: *Beccaze; Beccaccia* (Giglioli).

A common winter visitor: according to Wharton not at all common on the west coast, but Whitehead found it plentiful from December to January, though only small bags could be obtained owing to the dense macchia, on the east side of the island. Noted in the Ajaccio market by Backhouse and Parrot.

203. HYDROCHELIDON LEUCOPTERA (Temm.). White-winged Black Tern.

Whitehead saw two on May 28 in very stormy weather, hawking for dragon-flies over a rushy pond. Apparently this is the only species of Marsh-Tern which has been recorded from the island.

204. STERNA CASPIA Pall. Caspian Tern.

Although not recorded of recent years from the Straits of Bonifacio, this species is said to have bred there formerly. Durazzo states that it nested on Maddalena in 1837, and Arrigoni in his 'Manuale' (p. 789) speaks of it as breeding at various points on the west coast of Sardinia. Probably, as in other places, the colonies have been exterminated by the fishermen.

205. Sterna sandvicensis Lath. Sandwich Tern.

Giglioli says that this species is abundant and sedentary in Sardinia and Corsica. There seems, however, to be little evidence to this effect. Whitehead described it as not uncommon in the lagoons, and was shown two examples which were shot near Bastia, but does not mention the time of year when they were obtained.

206. Sterna hirundo L. Common Tern.

Whitehead described this Tern as fairly common in winter about the port of Ajaccio, and also noted a few on the lagoons. Giglioli (Sec. Resoconto, p. 629) ascribes the statement to Wharton, and adds that it is certainly an error and that autumn should be read for winter. That Whitehead was absolutely right is proved by the fact that Backhouse also noted this species in the Gulf of Ajaccio in January and obtained specimens.

207. Sterna minuta L. Lesser Tern.

On May 31, 1909, R. H. Read and I had a good view of a single Lesser Tern as it flew past within twenty yards of us, calling anxiously. This was on a shallow lagoon on the east coast, so that it may well have been breeding in the neighbourhood.

208. Larus ridibundus L. Black-headed Gull.

A fairly common winter visitor. Whitehead saw one in full breeding-plumage on April 30, and Parrot received another in May. Giglioli describes it as resident in his list, and, as it is said to breed both in Sardinia and in the Italian marshes, it is possible that a pair or two may nest occasionally, but there is no proof of this as yet.

209. Larus melanocephalus Temm. Adriatic Gull.

Giglioli records this species as seen at Porto Vecchio on September 26.

210. Larus canus L. Common Gull.

A fairly common winter visitor, recorded by Wharton, Whitehead, and Giglioli.

211. LARUS ARGENTATUS CACHINNANS Pall. Mediterranean Herring-Gull.

Local name : *Corbo marino.*

A common resident, breeding in colonies on the small islands round the coasts. Some of these colonies are of considerable size, and the eggs are taken in great numbers by the fishermen, who throw all those that are incubated into the sea, so that the birds may be forced to lay again. The latter seem to know what to expect, and come to meet the boats with a chorus of expostulatory cries. The normal breeding-season begins early in April, but on account of this persecution fresh eggs may be taken till June. The eggs are two or three in number, and shew considerable variation in size and colouring. Average size of fifty-seven Corsican eggs, 70·17 × 49·18 mm. ; max. 76·2 × 51·5 and 70·3 × 53·5, min. 65·5 × 45·3. A clutch of two dwarf eggs measured 63·5 × 48 and 60·3 × 46·3 mm.

212. LARUS FUSCUS L. Lesser Black-backed Gull.

Recorded by Giglioli as seen at Bastia.

213. LARUS AUDOUINI Payraud. Audouin's Gull.

Resident, breeding in small colonies on the islets in the Straits of Bonifacio. A specimen in the British Museum is said to have come from Corsica, and Whitehead found a wounded bird during a storm on January 14, but, not knowing its value at the time, did not keep it. In his article in 'The Ibis,' 1902, pp. 491–499, Arrigoni states that this species is apparently rarely met with on the western coasts of Corsica, but that six specimens have been killed on Elba (in January, March, May, August, and December), and that he believes it occurs on Capraia, Pianosa, and Monte Cristo. Readers of Lord Lilford's papers will remember his search for it in the Straits of Bonifacio (see 'Ibis,' 1887, pp. 280–281), and there is no doubt that a breeding-colony existed at that time on Spargi and Spargiotto, and most probably it has bred also, as Arrigoni states, on Caprera and Maddalena. Parrot received one, killed on May 31 near Isolilla, Gulf of Ajaccio. The small colony of about five pairs which I had the good fortune to discover in 1908 was nesting on a small low islet, and a good series of eggs was obtained here in 1908 and 1909. The breeding-habits and distinctions between this species and *L. a. cachinnans* were fully treated in an article of mine in the 'Ornithologische Jahrbuch,' xx. pp. 139–143 (1909). The alarm-note of Audouin's Gull is a monotonous "Ek-ek-ek-ek," frequently repeated as the bird flies close overhead. The nests are composed entirely of a mass of silvery-white ribbon-like alga which is thrown up in profusion on the Corsican coast, and are placed among the luxuriant clumps of low vegetation, so that they are not particularly easy to see. The eggs are generally two, occasionally three, in number. They are much smaller on average than those of the Herring-Gull, and the yolk is quite differently coloured, being of a very deep red (not unlike that of the Chough), while the yolk of the Herring-Gull's egg is yellow. Although the measurements of the eggs of the two birds overlap, they can always be distinguished by their weights. The average weight of sixteen unblown fresh eggs of *L. audouini* was 64·69 g. (75 to 51 g.); four typical fresh eggs of *L. a. cachinnans* averaged 91·25 g. When blown fourteen eggs of *L. audouini* average 4·19 g. (4·82 to 3·7 g.), whereas the average of twenty-eight eggs of *L. a. cachinnans* from the Mediterranean is 6·26 g. (7·60 to 5·18 g.), so that the heaviest egg of *L. audouini* is lighter than the lightest egg of *L. a. cachinnans*. Average size of eighteen Corsican eggs, 63·2 × 44·87 mm.; max. 66·2 × 46 and 63 × 46·2, min. 58·6 × 42·3. The normal time for fresh eggs is about May 7 to 16, and a second clutch is laid soon afterwards if the first is taken.

214. LARUS GELASTES Licht. Slender-billed Gull.

Giglioli notes this species as seen at Bonifacio on September 27.

215. STERCORARIUS POMARINUS (Temm.). Pomatorhine Skua.

Recorded by Giglioli as seen at sea near Aleria on September 12.

216. Alca torda L. Razorbill.

Giglioli states that this species was abundant along the east coast in the winters of 1885–86 and 1886–87, and Backhouse found it plentiful in the Gulf of Ajaccio in December 1890 and January 1891.

217. Fratercula arctica L. Puffin.

Giglioli (Secondo Resoconto, p. 684) says that this bird is stated to have been taken round the Corsican coast, and also mentions one obtained on Elba.

218. Otis tetrax L. Little Bustard.

Occasionally taken in the neighbourhood of Bonifacio, according to Giglioli.

219. Megalornis grus (L.). Crane.

Local name: *Gru* (Giglioli).

Occurs on double passage, according to Giglioli, but rarely stops.

220. Crex crex (L.). Corncrake.

Local name: *Re di quaglie* (Giglioli).

Giglioli describes this bird as scarce in autumn, and Dresser ('Birds of Europe,' vii. p. 294) says that he has received specimens from Corsica.

221. Porzana porzana (L.). Spotted Crake.

Occurs on passage, about the middle of March. Wharton noticed it on both sides of the island in March and April, but did not find it common. Jesse obtained a specimen at Lake Biguglia on March 17; Whitehead recorded it as passing about mid-March, and Parrot obtained a male on March 17 in the Campo de l'Oro.

222. Rallus aquaticus L. Water-Rail.

A common winter visitor. It occurs on both sides of the island, according to Wharton. Backhouse and Parrot met with specimens in the Ajaccio market in January and February. Whitehead saw none after April 15, but thought that probably some stayed to breed.

223. Gallinula chloropus L. Waterhen.

A common winter visitor; numbers also staying to breed, according to Whitehead. Wharton only noticed two at Biguglia in April, and we were surprised to find it absent from the lagoons visited by us in May.

224. Fulica atra L. Coot.

Local name: *Folaga.*

A winter visitor in varying numbers to the east coast lagoons according to Wharton and Whitehead, many remaining to breed. Whitehead says that in 1884 he only counted sixteen where there were hundreds in 1883.

225. Phasianus colchicus colchicus L. Pheasant.

Local names: *Fascianu, Faggianu* (Giglioli).

This species is said to have been introduced by the Romans, and to have been a fairly common resident formerly, but on account of continual shooting at all times of the year it is now confined to a few districts on the east side of the island, much overgrown with thick macchia. Jesse saw one recently shot at Aleria; Whitehead says that it is confined to theplain of Fiumorbo, where only two were shot in two months, and Giglioli describes it as still tolerably common near Ghisonaccia, where many are said to have been taken in the winter of 1888–89, and where, according to the natives, it is still to be met with.

226. Coturnix coturnix (L.). Quail.

Local name: *Quaglia.*

A common breeding species on all the low ground on the east side of the island. Some stay through the winter, but may, of course, be winter visitors from the Continent. Major Trevelyan and Dr. Parrot noticed specimens in the Ajaccio market in January and February, and Whitehead says that a good many are resident on the east coast. Whitehead records the first eggs on May 8, and we found full clutches on May 14 and 23.

227. Caccabis rufa corsa Parrot. Corsican Red-legged Partridge.

Caccabis rufa corsa Parrot, Ornitholog. Monatsberichte, xviii. p. 156 (1910—Corsica).

Local name: *Pernice.*

Parrot describes this race as resembling the Spanish form, *C. rufa hispanica*, in colour, but differing from it in its smaller size, the wing measuring only 150 mm. (♂), 140 (♀), and the tail 98 mm. (♂) and 77 (♀). In spite of the way in which this species is shot down at every opportunity, it still manages to hold its own and is not at all an uncommon resident, breeding up to considerable heights in the mountains, where not too thickly covered with forest. Two birds, which evidently were breeding close at hand, were flushed from the vicinity of an eyrie of the Golden Eagle at over 2000 ft. Giglioli thinks that it is only in the south of the island that it is found on the low ground. Full clutches of eggs, ranging from nine to twelve, and, it is said, even eighteen in number, may be found from mid-May onward. Average size of eighteen Corsican eggs, 38·84 × 30·64 mm.; max. 40 × 31 and 39·5 × 31·5, min. 37·5 × 30·2 and 38·3 × 30.

[CACCABIS PETROSA (J. F. Gmel.). Barbary Partridge.

Martorelli ('Gli Uccelli d'Italia,' p. 21) adduces some evidence of the occurrence of this species (which is common in Sardinia) in South Corsica, but at present proof of its presence is wanting (see Giglioli, Secondo Resoconto, p. 520).]

APPENDIX.

Since the account of the Literature was published in 'The Ibis.' 1911 (pp. 191–194), several additional papers on the subject have appeared, of which a list is given below.

1910. A. BONOMI, 'Avicula', 1910, xiv. Fasc. 155 (3 pp.), "Per l'Avifauna della Corsica." (Summary of Dr. Schiebel's paper in the Ornith. Jahrbuch, 1910, p. 102.)

1910. Dr. C. PARROT, Ornith. Jahrbuch, xxi. pp. 201–216, "Beiträge zur Ornithologie der Insel Korsika." (Continued from p. 166.) Notes on 18 forms.

1911. Dr. C. PARROT, Ornith. Jahrbuch, xxii. pp. 22–46, "Beiträge zur Ornithologie der Insel Korsika." (Concluding part of this valuable series of critical notes on the species observed by Dr. Parrot and specimens obtained by him from Corsica. Altogether 51 forms are treated of: *Anas angustirostris* is added to the Corsican list, and *Gypaëtus barbatus* and *Larus audouini* are both recorded. Dr. Parrot's posthumous paper was prepared for the press by Dr. Hellmayr, who adds a postscript.)

1911. Dr. G. SCHIEBEL, "Meine ornithologische Frühlings-Studienreise nach Corsica (1910)." [From the '61 Programme des Staats-Obergymnasiums zu Klagenfurt, 1910–1911.' 21 pp.] Amongst other interesting notes may be mentioned the first definite record of *Monticola saxatilis.* A feather of *Gypaëtus barbatus* was picked up and *Nisaëtus fasciatus* was observed. *Cisticola* was met with on the east coast, and the breeding of *Sturnus unicolor*, already recorded by Jourdain, is confirmed.

1911. Dr. G. Schiebel, Ornith. Monatsberichte, xix. p. 85, "*Turdus viscivorus reiseri*, subsp. nov." (The Corsican and Sardinian form of Mistle-Thrush separated.)

1911. V. Ritter von Tschusi, Ornith. Monatsschrift, xxxvi. p. 321, "Zwei neue Vogelformen aus Korsika." (*T. merula schiebeli* and *Chloris chloris madarászi* briefly described.)

1911. V. Ritter von Tschusi, Ornith. Jahrbuch, xxii. pp. 143–146, "Ueber palæarktische Formen, XV. Korsika." (Further notes on *T. merula schiebeli* and *Chloris c. madarászi.*)

1911. Rev. F. C. R. Jourdain, "The Bird-Life of Corsica." [From the 'Bericht über den V. Internationalen Ornithologen-Kongress,' Berlin, 1910, pp. 370–392.] Briefly annotated list of 225 forms recorded from Corsica.

1911. Dr. E. Hartert, Ornith. Monatsberichte, xix. p. 191, "Eine neue mediterrane Spechtform." (*Dendrocopus major parroti* described.)

Addenda to Systematic List.

3. Corvus corone L. Carrion-Crow.

4. Corvus frugilegus L. Rook.

The occurrence of these species is confirmed by Schiebel ('Frühlings-Studienreise,' p. 20).

9. Pyrrhocorax graculus (L.). Alpine Chough.

Noted by Schiebel (*t. c.* p. 19) at 1800 metres and upwards.

11. Sturnus unicolor Temm. Sardinian Starling.

Schiebel found this species numerous and breeding, but only near Ghisonaccia. It is, however, thinly distributed through all the low ground from there to Bonifacio.

14. Ligurinus chloris madarászi (Tschusi). Corsican Greenfinch.

Chloris chloris madarászi v. Tschusi, Ornith. Monatsschrift, xxxvi. p. 321 (1911—Corsica): *cf.* also v. Tschusi, Ornith. Jahrbuch, xxii. pp. 145, 146. Separated from the continental form by its darker colouring, with brownish instead of greyish tinge. Wing 82–85 mm. (♂), 81 (♀).

24. Passer italiæ (Vieill.). Italian Sparrow.

Although the chestnut-crowned bird replaces *P. domesticus* in Corsica, Schiebel noticed individuals with grey crowns. Probably *P. domesticus* occurs as a straggler and interbreeds with the resident birds.

25. Passer montanus L. Tree-Sparrow.

Schiebel (*t. c.* p. 17) states that this species is scarce, but that he first recognised it at Bastia on April 7.

37. Anthus spinoletta spinoletta (L.). Alpine Pipit.

Schiebel states (p. 19) that he met with this species commonly on Monte Renoso and towards Monte d'Oro up to a height of 1800 metres, and in small numbers up to 2100 metres.

80 *a*. Turdus merula schiebeli Tschusi. Corsican Blackbird.

Turdus merula schiebeli von Tschusi, Ornith. Monatsschrift, xxxvi. p. 321 (1911—Corsica): *cf.* also v. Tschusi, Ornith. Jahrbuch, xxii. pp. 144, 145. Resident Corsican birds are separated from the ordinary form on account of the exceptionally deep black plumage of the male. Wing (♂) 127 mm.

81 *a*. Monticola saxatilis L. Rock-Thrush.

This species, mentioned in my list in brackets on the evidence of a forester, can now be definitely added to the Corsican avifauna, as Schiebel (*t. c.* p. 20) mentions having seen a single bird on June 1 at a height of about 1200 metres.

The total number of forms now definitely recorded from Corsica amounts to two hundred and twenty-nine. Of these, no fewer than forty-one have been separated, though in several cases with very slight justification, as local races confined to Corsica and Sardinia, or in a few cases as found in Corsica alone. The following list contains the names of all these Tyrrhenian subspecies hitherto described. Those of doubtful validity are marked with a query. Where the same race is also found in Sardinia, the letter S follows, but where it is represented by another form the S is enclosed in brackets, (S).

1.	*Corvus corax sardus* Kleinschm.	S
2.	*C. cornix sardonius* Kleinschm.	S
7.	*Garrulus glandarius ichnusæ* Kleinschm.	S
14.	*Ligurinus chloris madarászi* (Tsch.).	S?
15.	*Carduelis carduelis tschusii* Arrig.	S
18.	*C. citrinella corsicana* (Koenig).	
21.	*Fringilla cœlebs tyrrhenica* Schieb.	S
23.	*Petronia petronia hellmayri* Arrig.	S
26.	*Emberiza calandra insularis* Parr.	S?
27.	*E. cirlus nigrostriata* Schieb.	(S)
32.	*Lullula arborea familiaris* Parr.	S
43.	*Certhia familiaris corsa* Hart.	

44.	*Sitta canadensis whiteheadi* Sharpe.	
45.	*Parus major corsus* Kleinschm.	S
46.	*P. cæruleus ogliastræ* Hart.	S
47.	*P. ater sardus* Kleinschm. ?	(S ?)
48.	*Ægithalus caudatus tyrrhenicus* Parr.	
49.	*Regulus regulus interni* Hart.	S
50.	*R. ignicapillus minor* Parr.	S ?
51.	*Lanius senator badius* Hartl.	S
52.	*L. collurio jourdaini* Parr.	S
53.	*Muscicapa striata tyrrhenica* Schieb.	S ?
66.	*Sylvia atricapilla pauluccii* Arrig. ?	S
73.	*S. sarda affinis* Parr. ?	S
76.	*Turdus viscivorus reiseri* Schieb.	S ?
80 *a*.	*T. merula schiebeli* Tsch.	S ?
84.	*Pratincola torquatus insularis* Parr.	S ?
87.	*Luscinia megarhyncha corsa* Parr.	S ?
89.	*Dandalus rubecula sardus* (Kleinschm.).	S
90.	*Prunella collaris tschusii* Schieb. ?	
92.	*Troglodytes troglodytes koenigi* Schieb.	S ?
93.	*Cinclus cinclus sapsworthi* Arrig.	S
105.	*Dendrocopus major parroti* Hart.	(S)
106.	*Iynx torquilla tschusii* Kleinschm.	S
107.	*Cuculus canorus kleinschmidti* Schieb. ?	S ?
111.	*Otus scops tschusii* (Schieb.) ?	S ?
112.	*Tyto alba ernesti* (Kleinschm.) ?	S
119.	*Buteo buteo arrigonii* Picchi.	S
126.	*Astur gentilis arrigonii* Kleinschm.	S
127.	*A. nisus wolterstorffi* (Kleinschm.).	S
227.	*Caccabis rufa corsa* Parr.	

With the single exception of *Sitta canadensis whiteheadi*, all these birds belong to well-known European species, and it is very noticeable that a large proportion of them shew a tendency to a darker and dingier type of colouring than the corresponding Continental forms. A conspicuous exception is, however, the extremely white-breasted form of Barn-Owl, but this is united by Hartert to the British and West-European race. It is, of course, a well-known fact that many insular forms shew this tendency to darker colouring, but in the case of Corsican birds it is nearly always accompanied by smaller measurements and decidedly shorter wings. This might, perhaps, be expected in birds of sedentary habits, confined to an island of so small an area, but it is somewhat remarkable that it appears to be the case also with some of the migratory species, such as the Corsican Nightingale, Red-backed Shrike, and Cuckoo. The Corsican Woodchat is, on the contrary, a somewhat long-winged bird.

The examination of a series of Corsican eggs also reveals the fact that in most cases they are smaller than those of the continental races of the same species and, on the whole, blues and greys seem to predominate over reds and browns. Thus, out of a large number of nests of the Subalpine Warbler examined, not one contained eggs of the handsome red type which is prevalent in some parts of Spain, and is also present in the Eastern race; no pinkish or red-brown eggs of the Sardinian Warbler were met with, and even in the case of the Red-backed Shrike eggs of the red type were very rare, though extremely common on the Continent. On the other hand, the ground-colour of the few eggs examined of the Corsican Mistle-Thrush was a deep blue, and some eggs of the Spotted Flycatcher had also a decided blue ground.

With regard to the nomenclature adopted, Dr. Hartert's work has been followed as far as it has already been published, and I have to thank him for allowing me to make use of his unpublished manuscript notes on the names of the remaining species.

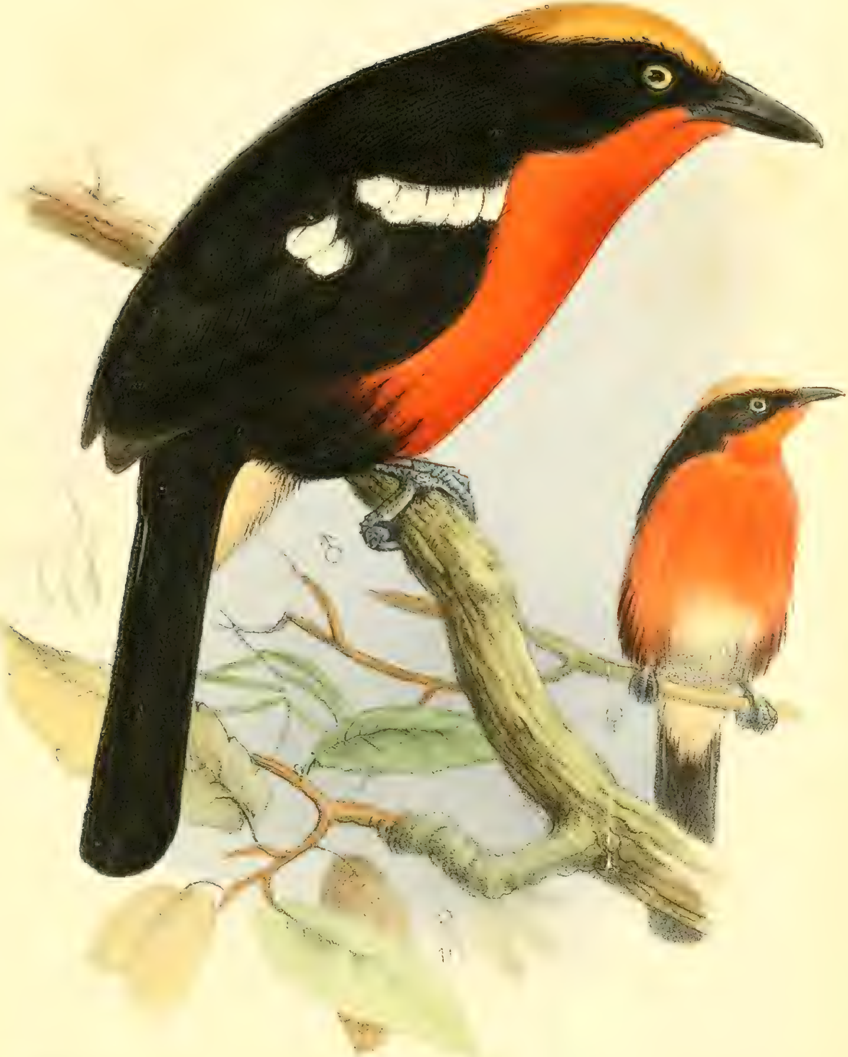
XVI.—*Notes on* Laniarius mufumbiri.

By W. R. Ogilvie-Grant, M.B.O.U.

(Plate VI.)

The genus *Laniarius* was created by Vieillot (Analyse, p. 41, no. 128, 1816), for the splendid Shrike first described by Brisson as La Pie-grièche rouge du Sénégal (Orn. ii. p. 185, pl. xvii. fig. 2, 1760), and named *Lanius barbarus* by Linnæus (S. N. i. p. 137, 1766). Le Vaillant figured it under the name Le Gonolek (Ois. d'Afr. iii. p. 78, pl. 69, 1799). It has the entire crown and nape dull golden-yellow, the lores, sides of the head and neck, as well as the upper parts, wings, and tail glossy black; the chin, throat,

Ibis. 1912. Pl. VI



H. Grönvold del.

West, Newman imp.

LANIARIUS MUFUMBIRI.

breast, and belly scarlet; the vent, under tail-coverts, and thighs brownish cinnamon. The feathers of the lower back and rump are soft, considerably lengthened and very voluminous, with concealed subterminal white spots.

Dr. Gadow (Cat. Birds B. M. viii. p. 104, 1883), in his Key to the Genera of *Malaconotinæ*, seems to infer that in the genus *Laniarius* the feathers of the lower back are not fluffy as in *Dryoscopus*; but, as already stated, this is a mistake, though possibly due to the way in which the key is worded. The remarkably handsome species, *L. barbarus*, which ranges from Senegal to the Niger, has always been readily recognised from all other species of *Laniarius* by its yellow crown; but last year a new species of the same type was discovered in the Mufumbiro Volcanos, and specimens were brought home almost simultaneously by Mrs. M. Roby and Mr. T. V. Fox. As will be seen by the accompanying Plate, this novelty is easily recognised by having the median wing-coverts broadly tipped with white, and the thighs, vent, and under tail-coverts whitish instead of light cinnamon-brown. It is, moreover, a much smaller bird, and has a wide black eyebrow-stripe separating the more ochraceous yellow crown from the eye: in *L. barbarus* the dull golden-yellow crown is narrowly separated from the eye by a black line, which is sometimes wanting.

The bird presented to the Museum by Mrs. Roby was said to have been obtained by that adventurous traveller at Vichumbi, at the south end of Lake Edward, on the 4th of December, 1910. A female procured by Mr. Fox was shot at Ruchuduru, Ruchigga, on the 19th of July, 1911. Mrs. Roby's specimen, which had been mummified with formalin, was with difficulty made into a skin, and it was impossible to ascertain the sex.

The species may be described as follows:—

LANIARIUS MUFUMBIRI.

Laniarius mufumbiri Ogilvie-Grant, Bull. B. O. C. xxix. p. 30 (1911).

Adult. Resembles *L. barbarus* Linn., but is considerably smaller. The median wing-coverts are broadly tipped with white, and the thighs, vent, and under tail-coverts whitish buff instead of pale cinnamon-brown. Iris lemon-white; bill and inside of the mouth black; feet grey.

Total length 190 mm.; culmen 24; wing 92; tail 86; tarsus 33.

In *L. barbarus* the wing-measurement varies considerably, from 108–117 mm. in males, and from 99–101 mm. in females.

Hab. Mufumbiro Volcanos and apparently extending its range to the southern shores of Lake Edward.

The type is in the British Museum. Adult. Vichumbi, 4.xii.10. Presented by Mrs. M. Roby.

The nearly *adult female*, shown in the background of the plate, was obtained by Mr. T. V. Fox. It is similar to the above, but has the back duller black and the vermilion of the throat tinged with yellowish.

XVII.—*Remarks on the Syrinx of the* Scolopacidæ.

By W. P. Pycraft, M.B.O.U. &c.

(Text-figures 6–9.)

[By permission of the Trustees of the British Museum.]

Having recently had occasion to look somewhat closely into the life-histories of the Woodcock and the Snipes, at any rate of our British species, I made a point of examining one or two features of anatomical interest which had been discussed, and it seemed to me unsatisfactorily, by others. The following pages are submitted as a summary of these investigations, mainly in so far as they concern the syrinx. Other aspects will be dealt with later.

Historically there is little to be said. On looking up the literature of the subject I find that, contrary to my belief, a figure of the syrinx of the Jack Snipe was published so long ago as 1884 by Wünderlich *. The striking peculiarities of this syrinx are more or less correctly given—rather less than more,—but unfortunately the figure purports to be that of the syrinx of the *Common* Snipe (*Gallinago cœlestis*). Dr. Gadow has reproduced the figure as that of "*Gallinago scolopacina*"—the Common Snipe—without comment. But there can be no question about the mistake, as those who refer to the figures given herewith may see. Recently a paper purporting to describe the syrinxes of the Jack Snipe and of the Common Snipe has appeared in the 'Zoologist' (vol. xv. ser. 4, p. 266), but this, and the figures which adorn it, cannot be taken as a serious contribution to the subject and need not be further mentioned.

Wünderlich fully realized the striking peculiarities of the syrinx, which he supposed to be that of the Common Snipe, and to him belongs the credit of pointing out that one of the Snipes, at least, possessed a syrinx so remarkable. Apparently he was not sufficiently familiar with the Jack and Common Snipes to enable him to distinguish between the two species, hence his unfortunate mistake. He was evidently unfamiliar with birds as seen from the field-ornithologist's point of view, as the latter is, for the most part, from that of the anatomist. Hence for years the error and the discovery alike remained unnoticed.

He was, however, profoundly impressed by the peculiarities which his dissection revealed. As he tells us: "Der untere Kehlkopf dieses Vogels gehört zu den sonderbarsten welche ich zu untersuchen Gelegenheit hatte. Fast drängt sich Einem die Ueberzeugung auf dass man hier mit einem Krankhaften Zustand zu thun hat." But this specimen was evidently a bird in good condition, and he speedily came to the conclusion that "ausser starker Fettdegeneration war keine Spur einer Krankheit zu finden." He failed, however, to properly interpret the curious intercalary bar, of which I shall speak presently, and similarly misinterpreted the form of its accessory cartilage.

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* Wünderlich, L., "Beiträge zur vergleichenden Anatomie und Entwickelungsgeschichte des unteren Kehlkopfes der Vögel," Nova Acta der Kais. Leop.-Carol. Deutsch. Akad. der Naturfors. xlviii., 1884.

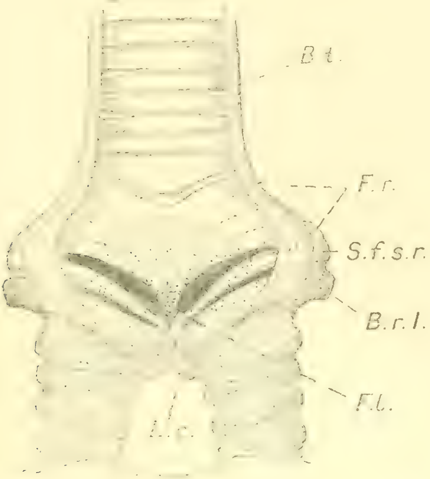
The writer in the 'Zoologist' just referred to may certainly claim to have been the first to attribute this peculiar syrinx to the Jack Snipe, but there his pretensions to fame must end, for the figures which purport to represent the syrinxes of the Jack and Common Snipe are grotesquely inaccurate, while his descriptions must come under the same condemnation.

The results of my own investigations may be briefly stated as follows:—

(1) *Jack Snipe.*—The syrinx of the Jack Snipe, so far as the evidence goes at present, differs not only from that of all other Scolopacidæ but also from that of all other Limicoline birds in at least one striking peculiarity to be described presently. To begin with, be it noted, it is formed of four more or less completely fused rings, of which only the most cephalad is complete. The remaining three form a gradually expanding series of incomplete rings, giving this end of the windpipe a roughly campanulate form, more strongly marked than in that of any other species of Scolopacidæ so far described (text-fig. 6, *F.r.*). Very well. Next comes a still more striking feature. Between this series of fused rings and what seems to answer to the first bronchial semi-ring is a semi-ring so closely bound by connective tissue to the syringeal fusion as to seem a part thereof. A little examination, however, will shew that this element is not fused therewith. Further, this semi-ring, as to its ventral end, is cartilaginous, and is attached by a bundle of short fibrous strands to the end of a lingulate plate of cartilage (text-fig. 6, *L.c.*). Caudad this plate rests against the mesial aspect of the ventral end of the second bronchial semi-ring, while it is partly encircled at its middle by the free end of the ventral extremity of bronchial ring I. (text-fig. 6, *B.r.I.*).

An examination of text-fig. 6, which is slightly diagrammatic, will shew the general form and relations of the parts so far discussed better than a mere description would do. In the first place, it will be noted, what answers to the ventral ends of the fused rings forms a fan-shaped area of cartilage. The cartilaginous end of the free syringeal semi-ring corresponds in area with that of the fused rings. For the sake of clearness this semi-ring (text-fig. 6, *S.f.s.r.*) has been shown forced apart from its normal attachment. Next it will be noticed that the campanulate mouth is divided into right and left moieties by a fibrous median partition forming a vertical pillar across the end of the trachea at its junction with the bronchi. This pillar answers to the "pessulus," and supports a vestigial semi-lunar membrane.

Text-fig. 6.

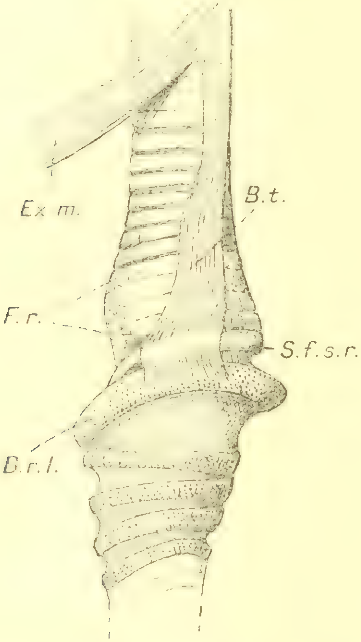


Syrinx of the Jack Snipe (*Limnocryptes gallinula*), ventral aspect, shewing the peculiar form of the syringeal box, the intercalary bar, and the accessory cartilage. Note the attachment of the latter to the intercalary bar by the bundle of short fibrous strands.

B.t. = Broncho-trachealis muscle.
B.r.I. = First bronchial semi-ring.
F.r. = Fused rings forming the syringeal box.
S.f.s.r. = Semi-fused syringeal semi-ring or intercalary bar.
L.c. = Lingual cartilage or accessory cartilage.
F.l. = Fibrous ligament between the intercalary bar and the accessory cartilage.

The free syringeal semi-ring constitutes a most remarkable feature of this syrinx, and so far as I know it has been met with in no other bird, while its peculiarity is still more increased by the lingulate plate of cartilage attached thereto. That this intercalary semi-ring belongs to the syringeal and not to the bronchial system of rings is shown, I think, partly by its relationship to the syrinx and partly by the fact that the intrinsic muscles (text-fig. 6, *B.t.*) are attached to the next pair of semi-rings, which have all the form and relations of bronchial rings. Further, be it noted, they, like the rest of the bronchial rings, are wholly cartilaginous, while this peculiar semi-ring is partly osseous, agreeing in the extent of its ossification with the rings immediately cephalad.

Text-fig. 7

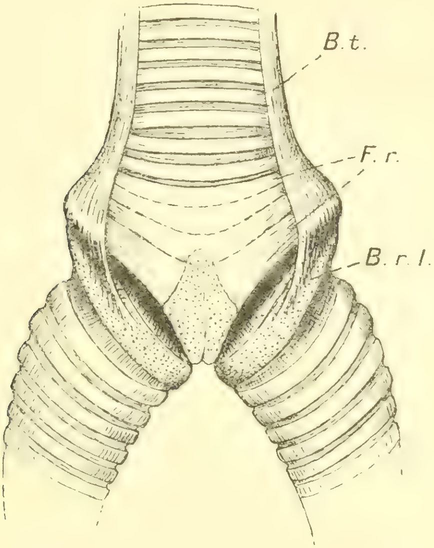


Syrinx of Jack Snipe, seen from the left side.
Additional letters: *Ex.m.* = Extrinsic muscle.

In text-fig. 7 the general appearance of this syrinx in side view is shown, and should greatly assist the reader in grasping the peculiarities just described.

(2) *Common Snipe.*—Turning now to the syrinx of the Common Snipe, it will be noticed that it is similarly composed of four fused rings, and that these, as in the Jack Snipe, gradually increase in circumference to form a more or less campanulate syringeal box; but this campanulation is very slight, and might escape notice, but for the attention called to this region by the exaggerations of the Jack Snipe. Although, it will be noticed (text-fig. 8, *F.r.*), that the syrinx is formed of four fused rings as in the Jack Snipe, the median cartilaginous area of the ventral aspect is much less and is almost confined to the free ends of the last, or hindmost, enlarged syringeal rings. The first bronchial ring, as in the Jack Snipe, is entirely cartilaginous; and there is no trace of what I have called the intercalary semi-ring. The intrinsic muscles have their normal insertion; and there is a rudimentary semi-lunar membrane, as in the Woodcock.

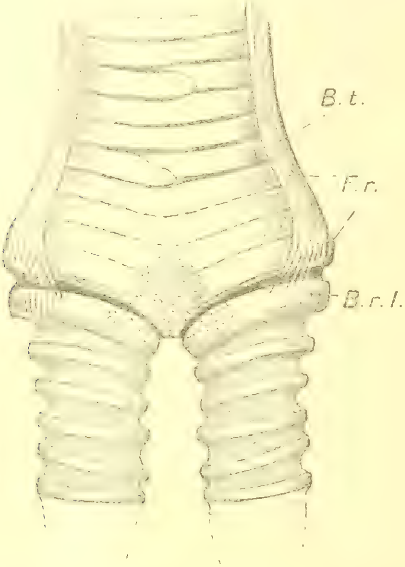
Text-fig. 8.



Syrinx of Common Snipe (*Gallinago cœlestis*), ventral aspect.
Letters as in text-fig. 6, p. 337.

(3) *Woodcock.*—The syrinx of the Woodcock recalls that of the Common Snipe, but presents some characteristic differences. It is formed of four fused rings, but the hindmost, it will be noted (text-fig. 9, *F.r.*), is not produced backwards (downwards, according to the orientation of the drawing) to form such an acute V-shape, while the amount of cartilage in its ventral border is reduced. The first bronchial ring differs from the rest of the series in being partly ossified, and its curvature also differs. But the most striking feature of this syrinx is seen in the intrinsic muscles, which are inserted for the most part into the syringeal box, only a few extremely delicate fibres, difficult to trace, attaining the normal goal of this muscle—the middle of the first bronchial semi-ring. This is a degenerate condition and one of no little interest.

Text-fig. 9.



Syrinx of Woodcock (*Gallinago rusticula*), ventral aspect.

Letters as in text-fig. 6.

Such, then, are the essential features of the syrinx in these three species. A comparison between them shews that in this matter the Woodcock is the least specialized, and, having regard to its restricted vocal powers, this degeneration is not a matter for surprise. The differences which obtain between the syrinx of the Jack Snipe and of the Common Snipe are at first rather surprising, but it must be remembered that they are correlated with a difference in the form of the posterior border of the sternum, which is double-notched, while in all the other Snipes so far examined this margin has but a single pair of notches. But the differences revealed by a comparison of the pterylography, of the convolutions of the intestines, and of the myology are negligible.

From the evidence so far available, we must regard the Jack Snipe as entitled to the generic rank accorded it long since. The close resemblance which obtains between the coloration of the Jack Snipe and the Common Snipe and its congeners we must regard as due to parallelism and not to convergence, for there can be no doubt that all are derived from a common ancestral stock.

XVIII.—*Obituary.*

Eugene William Oates.

It is with great regret that we have to announce the death, on November 16, 1911, at the age of 68, of our fellow-member Mr. Eugene William Oates, F.Z.S., who joined the Union in 1882. He was born at Girgenti, Sicily, on the 31st of December, 1845, and was educated partly at the Sydney College, Bath, and partly by tutors. In 1867 he passed, by competitive examination, into the Public Works Department of the Government of India, and was posted to Burma, where he soon commenced to investigate the ornithology of the Province, and wrote an article on the Birds of Pegu for the volume of 'Stray Feathers,' published in 1882. In 1881 he returned to England, on two years' leave, with a large collection of birds, and wrote the 'Birds of British Burmah' in two volumes. In 1886 he was requested by Dr. W. H. Blanford, the Editor of the 'Fauna of British India,' to undertake the portion dealing with Birds. For this purpose he came to England in 1888, again on two years' leave, and wrote the first two volumes, comprising the Passeres. Unable to obtain an extension of leave in order to complete the work, he returned to Burma in 1890. While thus engaged, he also brought out a second edition of 'The Nests and Eggs of Indian Birds' in three volumes. Mr. A. O. Hume having made over to him for that purpose all his notes and correspondence on the subject.

In 1897 Mr. Oates returned to England, and in 1898 and the succeeding year published the 'Game Birds of India' in two volumes. In 1898 the Trustees of the British Museum engaged his services for the purpose of cataloguing the large collection of Birds' Eggs in that Institution. He prepared the manuscript of four volumes, treating of about 50,000 specimens. The first two volumes were printed under his superintendence, but in 1902 he was compelled to abandon the work, owing to severe illness, and the next two volumes were completed, with additions to date, and printed under the supervision of Captain Savile G. Reid. The work has not yet been brought to a conclusion, but the fifth volume is under preparation by Mr. W. R. Ogilvie-Grant, and will shortly be published.

In June 1898 Mr. Oates was elected to the post of Secretary to the British Ornithologists' Union, and held that position till May 1901. During this period he edited a General Subject-Index to 'The Ibis,' 1859–1894, which had been very carefully compiled by the late Mr. G. A. Doubleday.

Mr. Oates retired from the Service in March 1899 and continued to reside in England from that date onwards.

His fine collection of Burmese Birds and their eggs was acquired by the Trustees of the British Museum; it is especially rich in examples of the Pheasants of the genus *Gennæus*, and contains many type-specimens.

XIX.—*Notices of Recent Ornithological Publications.*

[Continued from p. 207.]

30. *Abbott on the Osprey.*

[The Home-Life of the Osprey. Photographed and described by Clinton G. Abbott, B.A., with some Photographs by Howard H. Cleaves. London: Witherby & Co., 1911. 54 pp., 32 pls.]

This is one of the 'Bird-lover's Home-life Series' published by Messrs. Witherby, former volumes having been devoted to the Golden Eagle, the Spoonbill, Storks, and Herons. Full details are given, in excellent style, of the Osprey's habits, while the illustrations are well calculated to exhibit to the best advantage the position of the nest, the callow young, and the poses of the bird at the different stages of breeding. Our readers may like to compare with these Mr. Bahr's paper in 'British Birds' Magazine, vol. i. pp. 17–22, 40–43.

31. *Beebe on the Hoatzin.*

[A Contribution to the Ecology of the Adult Hoatzin. By C. William Beebe. Smithsonian Report for 1910, pp. 527–548. Washington, 1911.]

The Hoatzin (*Opisthocomus cristatus*) is certainly one of the most anomalous forms of living birds, and any further information on it and its eccentric mode of life that can be obtained will be much valued. Mr. Beebe, having himself seen the bird alive and paid great attention to its remarkable structure, is, above all men, qualified to give us his opinion on the subject. This he does in the present memoir, which is full of information on this extraordinary creature. After a short epitome of its history since its discovery by Hernandez some 250 years ago, Mr. Beebe gives us an account of its distribution, structure, nesting, and parasites, and adds his own field-notes on it taken in Venezuela and British Guiana. The Hoatzin is "unquestionably a vegetarian," though small fishes are occasionally found in its stomach. Two or three marshy plants appear to furnish its principal food. The nests are very similar to those of the small Green Heron (*Butorides* *striata*). The eggs are a creamy white in ground-colour, their entire surface being covered with irregularly shaped dots and spots of reddish brown.

A list of authorities finishes this excellent paper, which is further illustrated by 7 photographic plates of the bird's structure and habits.

32. *Duerden on the Plumages of the Ostrich.*

[The Plumages of the Ostrich. By Prof. J. E. Duerden, M.C., Ph.D. Smiths. Rep. for 1910.]

This is a separate copy (with corrections) of an article which appeared in the 'Agricultural Journal of the Union of South Africa' in 1910. Prof. Duerden states that four well-marked plumages can be distinguished in the Ostrich, which he denominates the "natal," the "chick," the "juvenal," and the "adult." He describes these four plumages at full length. We have no doubt that his descriptions are accurate and his figures correct. But we venture to ask him to study the works of Nitzsch, Parker, Garrod, Forbes, and other pterylographists and ascertain how far his views coincide with theirs. This essay is intended for the use of the Ostrich-farmers of South Africa.

33. *Fleming on a supposed new Duck.*

[A new Teal from the Andaman Islands. By J. H. Fleming. Proc. Biol. Soc. Washington, xxiv. p. 235 (1911).]

Mr. Fleming describes as "sufficiently different for a new subspecies" *Polionetta albigularis leucopareus*, allied to *Nettion albigulare* of Hume, but larger and more white. He bases the new form on specimens obtained on North Reef Island of the Andaman group, but admits that a specimen from North Andaman Island is intermediate.

34. *Gladstone on Dumfriesshire Birds.*

[Addenda and Corrigenda to 'The Birds of Dumfriesshire.' (Extracted from the Proceedings of the Dumfriesshire and Galloway N.H. Soc.) By Hugh S. Gladstone. Dumfries: 1911. 31 pp.]

Much new information is here given, and all possessors of the original work should endeavour to procure a copy. Future additions will be noted in the same journal.

35. *Goldman on an American Kingfisher.*

[A new Kingfisher. By T. E. Goldman. Smiths. Misc. Coll. 1911.]

The author has got together a large series of Kingfishers of the genus *Ceryle* allied to *C. americana*, and contends that the Central-American form (from Mexico to Panama) and the South-American forms should be referred to different subspecies. Mr. Goldman proposes to call this northern form *Ceryle americana isthmica*. But we do not see that he has established the difference of his proposed new subspecies from *Ceryle septentrionalis* of Sharpe.

36. *Hall on the Feather-Tracts of* Sphenura.

[The Feather-Tracts of *Sphenura broadbenti*. By Robert Hall, C.M.Z.S. Proc. Roy. Soc. Tasmania, 1911, p. 23.]

This is a minute description of the pterylosis of a somewhat anomalous Australian Passerine bird. Mr. Hall, perhaps correctly, calls it a "disappearing genus." But he does not give us any assistance in deciding where it would be best placed in the system.

37. *Henshaw on the Migration of the Pacific Plover.*

[Migration of the Pacific Plover to and from the Hawaiian Islands. By Henry W. Henshaw. Smiths. Rep. 1910, p. 545.]

Mr. Henshaw writes twenty pages about the Golden Plover (*Charadrius dominicus fulvus*), which is stated to be a regular visitor to the Hawaiian Islands on migration. He supposes that they come from Alaska; but the bird has a wide range, and it would be difficult to certify its supposed summer-quarters. Stragglers of some twenty or thirty species of North-American birds cross the Atlantic to the shores of Western Europe every year, and we see no difficulty in a corresponding migration taking place on the western side of North America. As Mr. Henshaw suggests, a regular line of migration might thus be formed and become permanent. But a much more embarrassing problem is the origin of the anomalous group of Passerine Birds (Drepanidæ) that form the leading feature of the Hawaiian Ornis.

38. *Howard on British Warblers.*

[The British Warblers. A History with Problems of their Lives. By H. Elliot Howard. Part 6. London, 1911: R. H. Porter.]

This part of Mr. Howard's work contains the Willow-, Rufous, and Savi's Warblers. The life-history of the first of these is so similar to that of the Chiffchaff that it needs no further comment, except that the author adduces an instance of apparent polygamy which came under his observation. The Rufous Warbler, being a casual visitor, is, as usual, merely described; but a trip to Hungary has enabled Mr. Howard to give us some valuable information on the habits of Savi's Warbler, while he is inclined to attribute to it that struggle for a breeding territory which is the key-note in his account of every species.

The photogravures are consistently charming, but we are unable to comment on the coloured plates, as they have been postponed, owing to an unfortunate accident.

39. '*The Irish Naturalist.*'

[The Irish Naturalist. A Monthly Journal of General Irish Natural History. Sept. 1911–Feb. 1912. Dublin: Eason & Sons.]

Though there is much of interest in these numbers of our contemporary, little of it refers to Birds, and perhaps the only item that we need mention is the report by Mr. R. M. Barrington of the introduction of the Marsh-Titmouse and the Nuthatch into Co. Tipperary, given as a warning of their alien origin to those who may meet with either species. The same writer tells us that he has just issued a general index to the work, which may now be obtained through the publishers.

40. *Kirkman on British Birds.*

[The British Bird Book. Edited by F. B. Kirkman. Section V. London and Edinburgh: T. C. & E. C. Jack. 4to.]

This part of the book contains the *Paridæ, Sittidæ,* *Panuridæ*, *Laniidæ*, *Muscicapidæ*, *Hirundinidæ*, *Picidæ*, *Iyngidæ*, *Cypselidæ*, and *Caprimulgidæ*. Miss Turner's notes on the Bearded and other Tits, and those of Mr. Pycraft on the Woodpeckers, are of considerable value, though we cannot quite agree as to the small numbers of the Bearded Tits on the Broads in 1888, when a steady increase had already begun after partial extirpation. Again, the Red-backed Shrike has increased, not decreased, in many places of late years, and we can hardly consider that the Green Woodpecker shews a preference for sandy soils or for old decaying oaks. At least, such is not our experience. But most of the information given is accurate and interesting.

41. *Koenig on the Result of his Visit to the Sudan.*

[Die Ergebnisse meiner Reise nach dem Sudan im Frühjahr 1910. Von Alexander Koenig. Mit 6 Tafeln. Ber. Intern. Ornith.-Kongress Berlin, 1910. (Pp. 469–545).]

This paper was read at the International Ornithological Congress at Berlin in 1910, but has only recently appeared in print. It contains a full narrative of the author's journey to the Sudan, with remarks on the birds obtained and observed on the route, and on the journey from Khartoum up the Nile to Redjaf and back (15th Feb. to April 9th, 1910), and two "appendices." The first appendix contains a systematic list of the birds (250 species) obtained and observed on the journey up the White Nile from Khartoum to Redjaf in 1910, with remarks on their exact localities, geographical distribution, and other particulars. The second appendix contains a similar list of the 126 species which were represented in the collection made by the author on a previous expedition in 1903 between Wadi Halfa and Khartoum. Altogether this is a very important contribution to our knowledge of the Avifauna of the Egyptian Sudan. Six well-drawn and nicely coloured plates illustrate the memoir. They represent *Centropus heuglini*, *Dendromus nubicus*, *Batis minor nyansæ*, *Campephaga xanthornoides*, *Melocichla mentalis amauroura*, and *Amblyospiza melanota*. Prof. Koenig got two fine male examples of the Shoe-bill

(*Balæniceps rex*), which he himself shot with a rifle on the White Nile near Lake No (*op. cit.* p. 476). We are glad to hear that no specimens of this wonderful bird may now be killed without a special permission of the authorities.

42. *Mearns on a supposed new Sun-bird.*

[Description of a new Species of Sun-bird, *Helionymba raineyi*, from British East Africa. By E. A. Mearns. Smiths. Misc. Coll. vol. lxvi. No. 18. 1911.]

The type of this species was obtained on the Telec River in the Sotik District, B. E. A. It is stated to be closely related to *H. erythrocerca*.

43. *Mearns on new* Cisticolæ.

[Descriptions of Seven new African Grass-Warblers of the Genus *Cisticola*. By E. A. Mearns. Smiths. Misc. Coll. vol. lxvi. No. 23. 1912.]

This paper is based on the collections made by the East-African Expedition under Col. Roosevelt, and contains descriptions of the following species and subspecies, supposed to be new:—*Cisticola prinioides kilimensis*, *C. subruficapilla æquatorialis*, *C. subruficapilla borea*, *C. alleni*, *C. strangei kapitensis*, *C. difficilis*, and *C. hypoxantha reichenowi*.

44. *Reiser on the Wheatears of the Balkan Peninsula.*

[Ueber die schwartz-weissen Steinschmätzer der Balkan-halbinsel. Von Otmar Reiser, Sarjevo. Ber. Intern. Orn.-Kongress Berlin, 1910.]

After giving a short sketch of the three divisions of the Fauna of the Balkan Peninsula and the Wheatears of each of them, this experienced and accurate observer discusses the much-vexed question of the relations of the two Black-and-White species (*Saxicola melanoleuca* and *S. albicollis*) to one another, and comes to the conclusion that Mr. Rothschild and Dr. Hartert (see Vög. Pal. Fauna, i. p. 685) were correct in deciding that they are only different forms of the same species.

45. *Reiser on his 'Ornis Balcanica.'*

[Die Endergebnisse meiner Balkanforschungen. Von Otmar Reiser. Ber. Intern. Orn.-Kongress Berlin, 1910, p. 766.]

In this short address Herr Reiser explained to his assembled colleagues at Berlin the difficulties, chiefly of a political nature, that have prevented the completion of his excellent work on the birds of the Balkan Peninsula. The first volume (Bulgaria) was issued in 1894, the second (Montenegro) in 1896, and the third (Greece) in 1905. We are now expecting the fourth and last, and hope that the industrious author will not fail to hasten its completion.

46. *Reiser on Vultures' Habits.*

[Wie finden die Geier das Aaas? Von Otmar Reiser. Ber. Intern. Orn.-Kongress Berlin, p. 561.]

Herr Reiser revives the old controversy respecting the way in which Vultures find their food, by *sight* or by *smell,* which we thought had been already settled. Living in a land where Vultures are still plentiful, he has a claim to be heard on the question, which he decides—quite correctly, we believe—in favour of *sight.*

47. *'Scottish Natural History.'*

[The Annals of Scottish Natural History, No. 80 (Oct. 1911), and The Scottish Naturalist, Nos. 1–2 (Jan–Feb. 1912).]

We must first give what may be called an obituary notice of the 'Annals of Scottish Natural History,' which now reverts to its former name of 'Scottish Naturalist,' on account of the separation from it of the Botanical portion, in future to be published apart. This excellent periodical was started by our well-known member Mr. Harvie-Brown, when he secured the goodwill of the old 'Scottish Naturalist,' and has been conducted by him and others for no less than twenty years. We may congratulate him heartily on the success of his venture, and may wish the new journal equal success under the Editorship of our friends Messrs. Eagle Clarke, W. Evans, and Grimshaw, the first of whom was jointly responsible for the good work done in connexion with the "defunct" periodical. In future, parts will be issued monthly.

The final (October) number of the 'Scottish Annals' contains only one paper on Birds, namely the continuation of the "Report on Scottish Ornithology" by Misses Rintoul and Baxter, giving details of the migration during the year. Crossbills again visited us from abroad, and there are several instances of the capture of the Continental forms of our species in both the north and the south of Scotland.

The first two numbers of the new issue contain some most important notes, but no long article on Ornithology. Mr. Eagle Clarke describes the first British example of the Pine-Bunting (*Emberiza leucocephala*), the second of the Sprosser (*Luscinia luscinia*), and the third of Baird's Sandpiper (*Tringa bairdi*); the two first-named occurred at Fair Isle, the last at St. Kilda. The first Scotch Woodchat-Shrike is recorded from the Isle of May by Misses Rintoul and Baxter, and the first Serin Finch from Edinburgh by Mr. Wild; while the Duchess of Bedford writes on Richard's Pipit and the Lapland Bunting, shot by her on Fair Isle. Mr. W. Evans and Mr. R. L. Ritchie each report the occurrence of a Whimbrel in winter on the coast of Haddingtonshire.

48. *Tschusi on Two new Corsican Birds.*

[Ueber Palæarktische Formen. Von Victor, Ritter von Tschusi zu Schmidhoffen. Orn. Jahrb. xxxii. p. 143.]

Two more Corsican birds are separated as subspecies in this paper, and named *Turdus merula schiebeli* and *Chloris chloris madaraszi*. The differential characters seem to be very slight in both cases.

49. *Van Pelt-Lechner on Dutch Oology.*

[Oologia Neerlandica. Eggs of Birds breeding in the Netherlands. By A. A. Van Pelt-Lechner. Pt. I. The Hague, 1911: unpaged, 34 pls. £1 1s.]

This new work on the eggs of the Birds of the Netherlands is to be completed in some seven parts, with 191 plates of specimens from the author's collection, which he hopes will represent the variations found in Nature more completely than has been the case in other works of a similar description. A short introduction is prefixed to every family with more than one Dutch species, while each plate is faced by a page giving in tabulated form particulars of the colour, size, shape, texture of shell, number, and weight of the eggs, with a description of the materials and position of the nest (if any), the duration of incubation, and the time of breeding.

In the part before us the writer's intentions have been carried out most successfully, and we may call special notice to the information as to the pigments found in the outermost chalky layer. The specimens on the plates are exceedingly well chosen, and the reproductions of them are beautiful.

The reader should be warned that the details of the nesting-habits refer only to the writer's country, or he may be astonished to find that the Raven breeds only in trees, the Jay chiefly in pines, the Chaffinch in trees, and so forth; while the Nuthatch is said to place a heap of vegetable matter beneath its eggs.

Under the head of the Family the species are often grouped according to the style of their eggs, and comparisons are made with those of birds outside the Netherland area.

The Families treated are *Corvidæ*, *Oriolidæ*, *Laniidæ*, *Sturnidæ*, *Fringillidæ*, *Alaudidæ*, *Motacillidæ*, *Certhiidæ*, *Sittidæ*, *Paridæ*, *Panuridæ*, *Regulidæ*, *Troglodytidæ*, *Accentoridæ*, and *Sylviidæ*.

We congratulate the author on the general excellence of his work, and look forward to the future parts dealing with other groups.

XX.—*Letters, Notes, &c.*

We have received the following Letters:—

Sirs,—There must, I suppose, be many Members of the B. O. U. who, like myself, take a general interest in Ornithology, while having neither time nor inclination to qualify as specialists in the subject. I think that many such Members will agree with me in protesting against the changes which have been proposed in the nomenclature of our British birds during the last few years. I am well aware that the worship of an elusive priority has introduced confusion in other groups of the animal kingdom, but I know of no group in which such instability is to be found as is to be witnessed in the writings of ornithologists. So great is the change that, for people like myself, the Latin nomenclature often ceases to define, and the English name, when it is given, becomes the only clue to identity. Who but a specialist habitually disporting himself in such arid fields would recognise *Anas platyrhyncha* ('Ibis,' 1912, p. 79) as our familiar *Anas boscas*, and would justify such a change? Again, on what authority are such names as *Ixobrychus* (p. 78), *Egatheus* (p. 77), *Tyto* (p. 71)—to choose but a few—introduced to supersede names consecrated by universal use?

Is it not time that the Union should set a limit to such name-shuffling? Would it not be practicable for a Committee of the Union to draw up a list of European (or even only British) birds with Latin names appended, and let no generic or specific names but these be printed in 'The Ibis'? Surely Latin binomial or trinomial nomenclature should be regarded as an instrument of precise description, and not be used as a weapon of offence.

Yours &c.,
Robert Gurney.

Ingham Old Hall,
February 10th, 1912.

[We quite agree with our correspondent's remarks, but may mention that a new edition of the B. O. U. 'List of

British Birds' is in course of preparation, and, when ready, will doubtless be used by all writers in this Journal.—Edd.]

Sirs,—For some time past I have been engaged in writing the Life of Sir William Jardine, the naturalist.

Would you be so good as to insert this letter in your Journal, in the hope that, if it catches the eye of anyone who might be able to assist me, either by letters from Sir William Jardine or from personal acquaintance, they would communicate with me?

Yours &c.,
Hugh S. Gladstone.

Capenoch, Thornhill, Dumfriesshire,
March 12th, 1912.

The Birds of Sinai.—At the Anniversary Meeting of the German Ornithological Society held at Eberswalde, in Prussia, in October last, Herr Graf von Zedlitz gave an account, as we learn from the 'Journal für Ornithologie,' of his recent visit to the Sinaitic Peninsula. He remarked that the district, from an ornithological point of view, had been comparatively little explored. In 1898 Professor Koenig, of Bonn, went there, but his bird-collection has not yet been worked out. The starting-point of Graf von Zedlitz's journey was El-Tor. From there he went towards the mountain-range, which was crossed from west to east. A full report of his journey will be published by the traveller, but a few short details may be mentioned. The genera *Cercomela, Pycnonotus, Ammoperdix,* and a species of Pigeon very similar to *Columba schimperi,* might be regarded as characteristic birds of Sinai. *Sylvia rueppelli* lives in the tamarisks, *Scotocerca inquieta* (newly fledged young of which were found as early as April) spends its days in the rough bush, and *Phylloscopus bonellii orientalis* nests in the smaller shrubs.

Particularly noticeable is the black Starling, *Amydrus tristrami*; it resembles the Alpine Chough in appearance, and animates the steep rocks with its shrill piping. Moreover, there are to be observed *Bubo ascalaphus*, *Lanius ancheri*, *Riparia rupestris obsoleta*, and *Dromolæa leucopyga*. *Carpodacus synaicus* keeps (even during the nesting-season) together in small flocks. *Ammomanes deserti fraterculа* and *Corvus affinis*, as well as *Gypaëtus*, were met with, but specimens of the last could not be obtained. *Phœnicurus mesoleucus* is perhaps a breeding bird of this district—at all events, it was observed in spring. Besides these, very many migratory birds were observed, and on the 1st of May upwards of 1200 Storks were seen in one flock.

On the whole, it may be said that in general characters the birds of the Sinaitic Peninsula are Asiatic and closely allied to those of Palestine, but have nothing in common with those of Egypt. The district furnishes a splendid road for migrants; the birds fly quite close to the ground, up and down the valleys, as there is much less wind there than on the hills. Our well-known *Sylvia curruca* and *Sylvia atricapilla* were observed in numbers. The males of the latter, even in spring, frequently shewed a brown crest.

[The chief authority on the Birds of Sinai is, of course, Tristram's 'Fauna and Flora of Palestine.' But the late C. W. Wyatt (see 'Ibis,' 1870, p. 1) wrote a special paper on the subject, and the same author's notes in the Report of the Ordnance Survey of Sinai (see 'Ibis,' 1873, p. 429) should also be consulted.—Edd.]

The National Museum of Natural History of Buenos Ayres.—We are informed that Dr. Angel Gallardo has been appointed Director of the National Museum of Natural History at Buenos Ayres in succession to Dr. Florentino Ameghino, the well-known Palæontologist, who died in August last.

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THE ANNUAL GENERAL MEETING OF THE B.O.U.

OUR SECRETARY wishes us to call attention to the ANNUAL GENERAL MEETING of this Society, which will be held (by permission) on Wednesday, May 8th, at the Office of the Zoological Society of London in the Outer Circle, Regent's Park, at 4.30 P.M. Proposals of new Members should be sent to the Secretary before the 8th of April.

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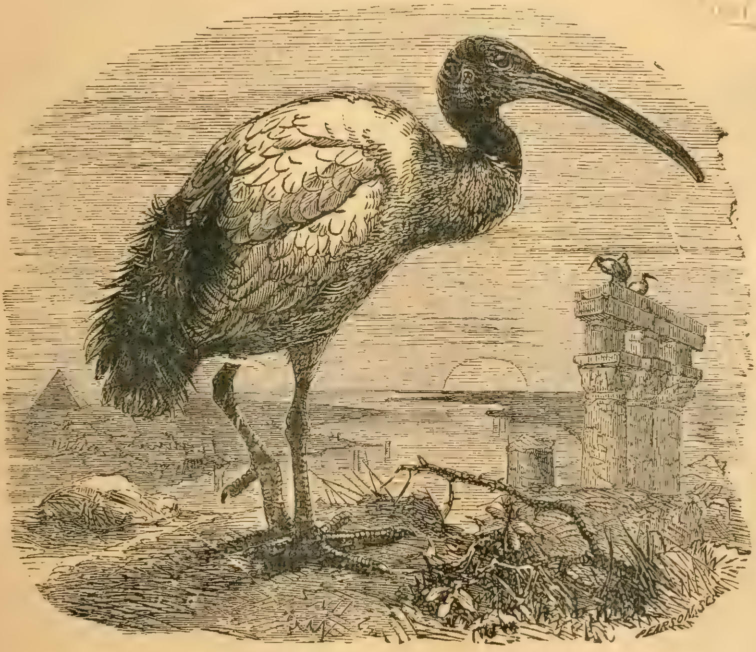

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69. 'Annals of the Cyprus Nat. Hist. Soc.' (No. 11, Jan.–Dec. 1911. 1912.)
70. 'Ardea.' Tijdschrift der Nederlandsche Ornithologische Vereeniging. (Jaargang i. Aflev. 1, April 1912.)
71. 'Bird Notes.' Journal of the Foreign Bird Club. (Vol. iii. Nos. 3–6. 1912.)
72. 'Bird Notes and News.' (Vol. v. Nos. 1 & 2. 1912.)
73. 'British Birds.' (Vol. v. Nos. 11, 12; Vol. vi. Nos. 1 & 2. 1912.)
74. 'Bulletin de la Société Zoologique de Genève.' (Tome i. Fasc. 10–16. 1911.)
75. 'Cassinia.' A Bird Annual. (No. xv. 1911. Philadelphia, 1912.)
76. 'The Condor.' (Vol. xiv. Nos. 2, 3. 1912.)
77. EAGLE CLARKE, W. Studies in Bird-Migration. (London, 1912.)
78. GLADSTONE, H. S. A Catalogue of the Vertebrate Fauna of Dumfriesshire. (Dumfries, 1912.)
79. HARTERT, JOURDAIN, TICEHURST, and WITHERBY. A Hand-list of British Birds. (London, 1912.)
80. HARVIE-BROWN, J. A. The Fulmar: its Past and Present Distribution as a Breeding Species in the British Isles. (Scottish Nat. 1912.)
81. HEADLEY, F. W. The Flight of Birds. (London, 1912.)
82. HENNICKE, C. R. Vogelschutzbuch. (Naturwissenschaftliche Wegweiser, Serie A, Band 27. Stuttgart, 1912.)
83. HORSBRUGH, Major BOYD. The Game-Birds and Water-Fowl of South Africa. (Part 1. London, 1912.)
84. Manila Bureau of Science. Tenth Annual Report. (Manila, 1912.)
85. MATHEWS, G. M. The Birds of Australia. (Vol. 1. pt. 6; Vol. 2. pt. 1. 1912.)
86. 'Messager Ornithologique.' (No. 2, 1912. Moscow.)
87. MORSE, A. P. Pocket List of Birds of Eastern Massachusetts. (Peabody Academy of Science, Salem, 1912.)
88. MOULTON, J. C. Report on the Sarawak Museum for 1910. (Sarawak, 1912.)
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XXI.—*On the Birds of Ngamiland.* By W. R. Ogilvie-Grant, M.B.O.U. *With Itinerary and Field-Notes by* R. B. Woosnam, M.B.O.U.

(Text-figure 10.)

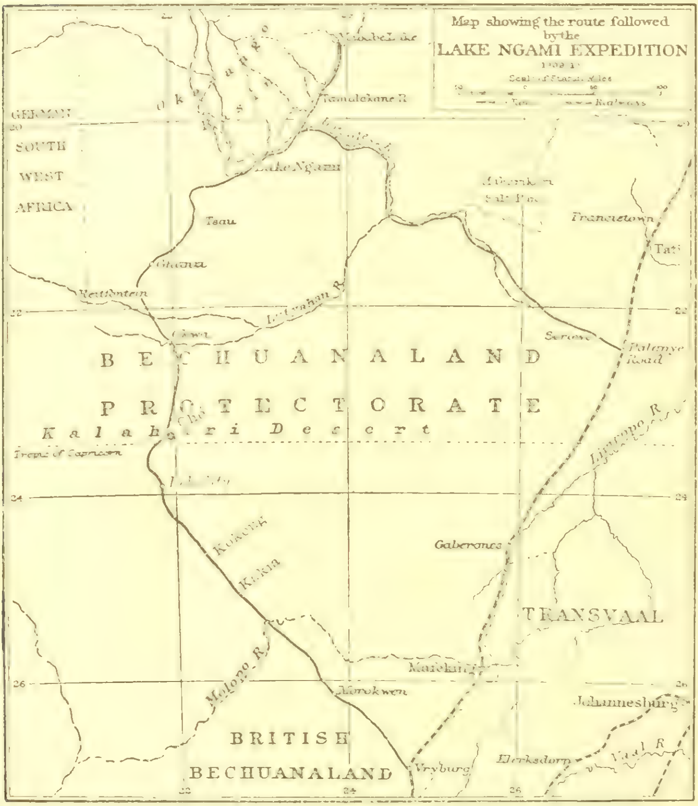
It had long been the ambition of Mr. R. B. Woosnam to make an expedition into the heart of the Kalahari Desert, and as I was equally anxious to procure zoological collections from Ngamiland for the Natural History Museum, I was glad to assist him in carrying out this project. Thanks to the generosity of the Duke of Bedford, Lord Iveagh, Sir Andrew Noble, Mr. Rowland Ward, and the late Mr. C. Czarnikow, considerable funds were obtained for the purpose; also, through the intervention of Dr. P. L. Sclater, a sum of £100 was specially granted by the Royal Society to assist in making a collection of the Fishes of Lake Ngami. It was most important that the collection of Fishes should be as complete as possible, for there is a very special interest attaching to them, and, as the lake is rapidly becoming dry, the extermination of many of the peculiar species is probably only a matter of time.

Mr. Woosnam was fortunate enough to obtain the help and companionship of the Hon. Gerald Legge, who was also one of the members of the recent expedition to Ruwenzori, and he very kindly not only contributed towards the expenses of the trip, but rendered much valuable service in collecting specimens.

ITINERARY.

To visit Lake Ngami with any degree of ease and comfort, it is essential to spend at least a year in making the journey to and from the lake, for to get there it is necessary to cross a long tract of the Kalahari where there is little or no water. A start should be made at the end of the rainy season, when the pans and vleis have water in them, and the return journey should be accomplished during the following rainy season. In this way the discomforts and risks of travelling in the Kalahari may be reduced to a minimum.

Text-fig. 10.


Map showing the route followed by the
LAKE NGAMI EXPEDITION
Tamalakane R.
Lake Ngami
GERMAN SOUTH WEST AFRICA
Tsau
Ghanzi
Rietfontein
Letyahau R.
Francistown
Tati
Palapye Road
BECHUANALAND PROTECTORATE
Kalahari Desert
Tropic of Capricorn
Limpopo R.
Gaberones
TRANSVAAL
Molopo R.
Mafeking
Morokwen
Johannesburg
BRITISH BECHUANALAND
Vryburg
Klerksdorp
Vaal R.
20
22
24
26

Route of the Lake Ngami Expedition.

Though the series of Birds is not very large or complete, the specimens procured form a valuable addition to the National Collection, nothing having been received from Ngamiland since James Chapman and C. J. Andersson visited that country nearly fifty years ago.

Lake Ngami (text-fig. 10, p. 356) is situated in the north of the Kalahari Desert, and lies between 20° and 21° South latitude, and in 23° East longitude. There are two routes to the Lake through British territory, which have been used by traders for the last fifty years. One from Palapye Road Station, *viâ* Serowe (Khama's capital), and thence N. and N.E. across the desert to the nearest point of the Botletle River, whence the road follows the river up to the Lake. This was Livingstone's way and is the best-known—in fact, it is now the only route used. The other, which starts from Mafeking, goes west, *viâ* Kakia and Kokong to Lehutitu, and thence north past Okwa and Ghanzi to the Lake. This route is never used now, and when we travelled by it in 1909 only one wagon had been along the track during the previous six years, so that it was almost entirely obliterated between Lehutitu and Ghanzi. For various reasons we decided to start from Vryburg, and, crossing the Molopo River to join the Mafeking-Lehutitu road at Kakia. This is really the shortest road from Vryburg to Lake Ngami and passes through the middle of the desert; but, in time, the first-mentioned route is a little shorter, since the journey as far as Palapye Road can be made by rail.

The expedition was fitted out at Vryburg, the transport consisting of one full-tented ox-wagon, twenty oxen, and two riding-horses, as well as three natives (a driver, a leader, and a cook). It is absolutely essential that the driver should be a first-class man, thoroughly experienced in handling oxen in a thirst-country, and he must know what oxen can do, otherwise such a journey is almost certain to end in serious disaster, with loss of all transport and probably the lives of all concerned.

The South-African ox-wagon is not really a very suitable conveyance for travelling in the Kalahari. It is very heavy and cumbersome, the two front wheels being rather small, while the narrow tyres of all four sink so deeply into the soft sand that it is often as much as twenty oxen can do to pull it at all. Far better than the ox-wagon is a good strong Scotch-cart, with only two wheels, and those large ones: twelve or fourteen oxen can pull it with ease through any sand, and it is much easier to drive in timbered country as it can be turned about so much more handily. An ox-wagon, however, will hold at least four times as much as a Scotch-cart, is far more comfortable and roomy to travel in, and if not loaded with more than 4000 lbs., can usually be taken anywhere by a good team of oxen. The tent of the wagon or Scotch-cart should be sound and covered with strong canvas and the front part with raw ox-skins, put on soft, with the hairy side next the wagon, otherwise the continual brushing past the thorn-trees will strip off the covering in a very short time. For the same reason, it is quite useless to tie anything on the outside of the wagon. Water-barrels should be slung underneath, and must be very firmly attached. Strong raw-hide reins are best for this purpose, for when a stump or fallen tree strikes the barrel a rein will give a little, while an iron fixture will either break or burst the barrel. The barrels should be hung as high as possible from the ground to prevent them touching it when the wheels are in deep sand. It is also important to have them fitted with sound taps, which can be locked. The barrels should be inspected *daily* to see that they are not leaking.

It is not advisable to take a new wagon for a long journey in the desert: a sound secondhand wagon is the most reliable, as its weak points have already been discovered, and it will better withstand the extremely dry and hot climate.

The selection of oxen is a most important point for any expedition into the Kalahari, for upon their efficiency its success to a very great extent depends. The "Short-horn" and "Friesland" breeds are not at all suitable, as they cannot stand thirst and are not accustomed to feeding on the wild melons. "Africander" trek-oxen are fairly good, especially if they have been bred in Bechuanaland or in the

Protectorate, along the borders of the desert; but I think by far the best is the "Kaffir ox," which appears to be a kind of degenerate cross-breed between the "Damara" and "Africander" and has always very large horns. These oxen, if chosen from such districts as Morokwen or anywhere along the edges of the desert, are well accustomed to thirst, as in such places during the dry season water is seldom obtainable except from wells. The natives never think of watering their oxen oftener than once in two days, and in many places they have to live entirely on wild melons for six months in the year. Such oxen are obviously eminently suited for use in the desert. My experience is that the best type is one that is compactly and strongly built, with a short neck; it does not take so long to feed as a big ox, and will stand the heavy work in the sand better than a large lanky beast *.

It would take far too long to give here a detailed account of the journey, day by day, through the desert, from Vryburg to Lake Ngami, and this would consist for the most part of a monotonous catalogue of long, cold night-treks through the interminable silent bush-veldt of the Kalahari; I will therefore attempt to give only a short outline of the various stages into which the journey can be divided. As the heat of the sun is too great to allow oxen, which are getting no water, to work during the day-time, all travelling has to be done at night, after 4 P.M. and up to 10 A.M. This leaves a very short day, which is almost entirely taken up by much-needed sleep and rest, so that while travelling in the Kalahari very little time is available for work of any kind.

The first stage of the journey is from Vryburg to Morokwen, a distance of about ninety-five miles. The road

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* It is most important that the span of oxen should be thoroughly well trained to pull together evenly, for during the long dark night-treks it is almost impossible for the driver to note all the shirkers, which will not do their fair share of the work, while the best oxen are killing themselves. The two front and hind oxen are the most important in the whole span.

passes through civilized country all the way, and water is obtainable at farms every day. Morokwen is a large native stadt, which is placed around the edge of one of the huge flat salt-pans so characteristic of the Kalahari Desert proper, which may be said to begin at that place. The next stage, to the Molopo, nearly a hundred miles, is a very unpleasant bit of travelling, the road, with the exception of the last thirty miles, being terribly stony and passing through a great deal of low "hock dorn" scrub, by far the most impenetrable and destructive thorny vegetation met with in South Africa. Water is only to be had at long intervals, and is very bad; in fact, at one halting-place, which had been deserted by the natives, the water we were obliged to use was the worst met with during the whole journey. It had to be boiled with alum and the green slime allowed to deposit several times before it was possible to use it, and even then it had a most disagreeable flavour.

At Morokwen the open veldt is left behind, while the tall "Kameel-thorn" forest and bush-veldt, so typical of the Kalahari, begins, and extends right up to and beyond Ngamiland, with only a few short breaks of more or less open country. As soon as this forest-country is entered many birds are met with which are not to be seen in the barer district to the east. A fine Red-legged Francolin (*Francolinus adspersus*) is very conspicuous, being a very noisy bird in the mornings and evenings. A Hornbill (*Lophoceros leucomelas*) and the Long-tailed Shrike (*Urolestes melanoleucus*) are also very noticeable.

At night the Pearl-spotted Owl and Erlanger's Scops-Owl may be heard calling in all directions. Both of these small Owls were particularly common along the Molopo River, and are most delightful little birds. In Ngamiland we were fortunate enough to get young ones of both species, which travelled safely home to England and lived for some time in the Zoological Gardens. They were, I think, the most amusing and charming pets I have ever had.

We spent some time on the Molopo River, as the oxen's feet had been much cut and knocked about on the bad stones between Morokwen and the Molopo, and while there we experienced the most terrific thunderstorm I have ever witnessed. It came on quite suddenly at 10 o'clock at night on April 5th. Its path was only about three-quarters of a mile broad, and swept across from west to east. Our camp was, luckily, only touched by the margin of the storm, or we should certainly have lost some of the oxen and horses. It will give some idea of the severity of the disturbance when I say that the next morning the hail-stones, after lying melting on the ground all the night, which was a warm one, were 1½ inches in length. Along the path of the storm the acacia-trees were completely stripped of their foliage, boughs as thick as one's finger being cut off as if by a bullet. All the grass and vegetation was beaten down and cut up into short lengths of a few inches. I saw several dead and stunned birds about, all, curiously enough, being Glossy Starlings; and the river-banks were strewn with dead and crippled frogs.

From the Molopo River we had a long stretch of desert to cross, fifty miles without water, to a village called Kakia. There is practically no road to follow, only a little-used footpath, and the bush is very dense all the way. Here, however, the sandy soil being exceptionally hard for the desert, the distance can be traversed in a comparatively short time, and we managed to reach Kakia on the third evening. When travelling in the desert it is necessary to drive the oxen as hard as possible between the various waters, and then give them a few days' rest, at each water-hole to recuperate, as they will not feed when thirsty. Kakia is a miserable spot and particularly lifeless. There is a huge shallow salt-pan, on the north-east side of which is a fairly strong spring of fresh water and a stronger spring of slightly brackish water, near a small Barolong village. The people were all very ill with what was probably a specially malignant form of malaria. There had been many deaths, and we were told that the natives were dying by hundreds further on at Lehutitu, which proved to be true.

The big pan at Kakia is quite dry during nine months of the year and is very shallow: there were a few small Waders feeding along the edge and a small family-party of Pink-billed Teal, which had evidently bred among some stunted rushes on the south side. We were surprised to see also two pairs of Dabchicks with full-grown young.

From Kakia there is a very long waterless stage of a hundred and sixty miles to a place called Lehutitu, or Lehututu, the native name for the large Ground Hornbill. Why this village should be named after it, I do not know, as I never saw or heard one of these birds in the neighbourhood, and we did not meet with them until we reached the marshes of Ngamiland, where they are not uncommon. The road is a comparatively well-marked one, as several traders' wagons pass along it every year, between Mafeking and Lehutitu, which is a rather important native centre, near the German border. There are a great many large shallow pans between Kakia and Lehutitu which hold water during the height of a good rainy season, and water can then be obtained every day during the journey; but that is a very unpleasant time to travel in the Kalahari, and the pans were all dry when we passed in May. We obtained water for the oxen, however, at one place called Kokong (the native name for a Gnu), about forty miles from Kakia, where there is a small Barolong village, situated in an enormous basin several miles across. At the bottom of the basin there is a pan and some wells, which run dry in a bad season. The sides of this depression, which are covered with short grass, are devoid of the inevitable Kameel-thorn, and here we saw several wild Ostriches and the Black Knorhaan. There are usually a few isolated pairs of the latter in the open grassy pans throughout the Kalahari, but they are never found in the Kameel-thorn forest, where their place is taken by the Red-crested Bustard, which is very numerous in all the bush-country of the Desert. This handsome bird is a most accomplished ventriloquist. It is most difficult to locate its succession of whistling notes, which are such a familiar sound in the Kalahari, unless the bird indulges in its remarkable habit of suddenly shooting, rocket-like, into the air for about fifty feet and then dropping like a stone, with wings closed, to the ground. The males alone perform this feat and principally during the breeding-season, but I have seen them do so in the early mornings or evenings in mid-winter.

After leaving Kokong we had a distance of a hundred and twenty miles to accomplish without water to Lehutitu, which we succeeded in reaching on the eighth day. There were very few sarma or wild melons along this part of the desert, and the oxen were suffering so much from thirst by the fifth day that we were obliged to outspan them and let the driver take them on to the water at Lehutitu, while we remained with the wagon until they returned two days later. We were able to reach Lehutitu safely, and remained there for nearly a week to rest the oxen. Lehutitu is another huge shallow salt-pan, dry at the time of our visit, flat as a billiard-table, and of a glistening white or grey colour. The central part of the Kalahari is covered with these pans, and they are to be met with in all directions every ten miles or so. Some are covered with grass, others are absolutely bare, and when dry these latter usually shew a considerable deposit of salt and nitrate of soda.

From Lehutitu there is another long waterless stage of a hundred and thirty miles to Okwa. We were fortunate, however, in obtaining a little water for the oxen from a native well at a dry pan called Ohé, about thirty-five miles from Lehutitu, but it is only after a good rainy season that water can be obtained there. At one end of this pan the natives had dug some shallow pits, which still held a little stagnant and filthy water, and the number of Doves which came to drink there every morning quite baffles description. They come in great numbers to all the desert wells, but at Ohé they were in countless thousands, and so ridiculously nervous and easily startled that they spent half the day in attempting to quench their thirst. Battalions wheeled round and round over the pool, and just as they were about to settle some unexpected movement would startle the whole flock, which would continue flying round and round as before. There must be enormous migrations of these Desert-Doves, else they would die by millions from thirst; for towards the end of the dry season all but the deep wells run dry and they cannot obtain water from them. There are two kinds of birds the sight or sound of which gladden the heart of the traveller in the Kalahari—Doves and Bulbuls. Their presence is an absolutely sure indication that water is at no great distance, for I believe both these birds must have it every day. It is rather remarkable that on this dry pan at Ohé we saw three Avocets and two Stilts, looking, and no doubt feeling, like the proverbial Pelican. Probably they had been passing over at night, and being deceived by the glistening dry pan had come down, thinking it was water.

The remaining hundred miles from Ohé to Okwa was a very pleasant part of the journey, as sarma were abundant the whole way and we were consequently able to travel more slowly. The oxen and horses did not suffer in the least from thirst, and most of them would not drink on arrival at Okwa, after having been eight days without water.

The problems and difficulties of travelling in the Kalahari are almost entirely summed up in the two words "water" and "sarma."

Okwa Spruit is a fine broad valley, at the bottom of which is the rocky bed of a periodical stream that only runs during the rains. There were still some good pools of water standing in the bed, on one of which we found two Pink-billed Teal. There seems little doubt that this fine spruit runs north-east across the desert into the Botletle River near Rakop's.

From Okwa we had little difficulty, so far as water was concerned, in reaching Ngamiland, a distance of about a hundred and sixty miles; but we had great difficulty in finding the way, as we discovered before reaching Okwa that the guide we had taken from Lehutitu knew rather less about the road than we did ourselves, and we were unable to get another. To make matters worse, only one wagon had been along this track during the last six years, so that in places no traces of it were to be seen.

From Okwa we had two long stretches of about forty miles without water. Then came several very pleasant days travelling through the Ghanzi district, where quite a large colony of Boers is springing up. Here we passed rocky pans of water every five or six miles, and first began to realize the proximity of the Okavango marshes.

Large numbers of Ducks were flighting to these small pans in the evening, numerous Painted and African Snipes were also flushed, and one Pigmy Goose was obtained. The vegetation had begun to change somewhat at Okwa, and numerous scented shrubs and new varieties of acacias with delicate tropical-looking foliage began to appear. Near Okwa we had noticed a few stunted bushes with large semi-tropical-looking dark green leaves; these bushes increased in size and in frequency as we went north, till in Ngamiland they grew into quite magnificent trees. There was practically no change in the bird-life until the edge of the marshes was reached. There the Red-crested Bustard disappeared and another Francolin (*F. swainsoni*) appeared, which we had not seen before reaching the Ghanzi district. On June 23rd we reached the first branch of the Okavango River, about twenty miles north of Lake Ngami, having been in the desert since March 25th. We were lucky enough to receive a most favourable first impression, for at this spot we saw more Ducks and Geese, both as regards variety and numbers, than at any other place visited during our stay in Ngamiland.

LAKE NGAMI AND THE OKAVANGO MARSHES.

At the present day the importance and capacity of Lake Ngami is infinitesimal when compared with the huge extent of the Okavango marshes and the periodically flooded area to the N. and N.E. of the lake; and it is important to realize that the origin and only source of all the intricate maze of streams and marshes in Ngamiland is the great Okavango River, which rises in the Mosamba Mountains in Portuguese W. Africa and drains an enormous area with a very heavy rainfall from September to February or March. The result of this is a huge periodical flood which flows down the Okavango into the marshes of Ngamiland, of which Lake Ngami is really a part. These gradually rise and overspread hundreds of square miles of the surrounding country, which is extraordinarily flat, the inundation reaching its highest point *not* during the rainy season, but towards the end of the dry season about August or September. None of this enormous volume of water finds its way to the sea, but after filling the marshes north of the lake, and formerly the lake itself, flows on down the Botletle or Zonga River, and is at length lost by evaporation and percolation.

No doubt formerly, on many occasions, some of this flood-water has reached the great Makarikari salt-pan, which is the Ngamiland basin; but apparently no flood has been sufficiently large to reach it for many years, although an old dry river-bed can be traced a long way to the east of the present end of the Botletle.

It is no doubt only quite recently that the water-supply of Lake Ngami has failed and the lake has partially dried up, for although the processes which have brought about this result must have been in progress long before Livingstone's visit in 1849, his descriptions of the lake and his illustration clearly shew it to have been then an imposing sheet of water and to a great extent open. To-day Lake Ngami is merely a great reed-bed, which dries up almost entirely before the periodical flood begins. Whether there are any large pools and open sheets of water in the interior of this reed-bed, which do not dry up, unfortunately I cannot say, as no white man has ever penetrated far into the lake * and native evidence is not unanimous on the subject. I am, however, certainly inclined to agree with those who say that by March the lake is absolutely dry on the surface, except for a few shallow pools at the S.E. corner where it is connected with the Botletle. The explanation of this failure of the water-supply of the lake is to be found in the fact that one of the many large channels of the Okavango River, called the Téoughé, which formerly ran into the lake at the N.W. corner, has gradually become choked by a natural process of reed-growth and silting-up. Now no water at all finds its way into the lake from the north-west, and its only source of supply is the south-east corner, where it is connected with the Botletle by a kind of back-water or arm through which it receives a certain amount of water when the floods in the Botletle have risen sufficiently high for water to run back along this channel. Livingstone wrote of this back-water that it had never been observed to flow either way and was as stagnant as the lake itself, but this is not the case at the present day. At the time of our departure from Ngamiland in October water was running *into the lake* with considerable current and volume, but the lake never fills now to anything like its former level.

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* It was very unfortunate that this point could not be cleared up, but, owing to the sudden and serious illness of my companion, a hasty retreat had to be made to the railway-line before the exploration of the centre of the lake had been carried out.

From the ornithological point of view we found Ngamiland rather disappointing. Even the water-birds (Ducks excepted) were not observed in such numbers as we had been led to expect from the descriptions of other travellers, and I can only remember seeing two Pelicans during the whole of our stay. However, there is no doubt that the date of our visit, which was while the inundation was rising (the dry season), was not the best time to see the birds. It is during the rains (October to March), when the floods are subsiding, that such vast quantities of water-fowl are attracted to feed on the flats. The Marabou Storks were beginning to appear in parties when we were obliged to leave in October.

Ducks were always to be seen, often in incredible numbers, flighting in the evenings. By far the most numerous species was the Pink-billed Teal, and next the Cape Pochard. The Yellow-billed Duck was not very common. Hottentot Teal were met with in small numbers throughout the marshes, and the White-faced Tree-Duck was often found in large flocks. It is curious that we did not see a single specimen of the Cape Shoveler in Ngamiland, nor did we notice any Egyptian Geese. The Knob-billed Duck was in fair numbers, and the Pigmy Goose was very plentiful on the Tamalakan

River and in the marshes. The Whistling Tree-Duck had a very curious local distribution; two or three individuals were seen at Maputi, where we first touched the marshes, but they were by no means common there and were never met with again till we reached what is called Lake Kamadan at the end of the Botletle, where this was quite the commonest Duck.

The collection is by no means representative of the birds of Ngamiland, for I was principally engaged in procuring the fishes, and our sudden and hasty departure left the collections in an incomplete condition.—*R. B. W.*

The following paper contains a list of the localities at which birds were collected and an account of the species procured, with field-notes by the collectors.

Examples of four new species (*Cisticola kalahariæ*, *Bradypterus bedfordi*, *Certhilauda kalahariæ*, and *Trachyphonus nobilis*) were obtained, also one new subspecies of Bulbul, *Pycnonotus tricolor ngamii*. The first-mentioned of these species has been already described in the 'Bulletin' of the B.O.C.; the remaining forms are described in the present paper.

For the sake of brevity, Dr. Reichenow's 'Die Vögel Afrikas' is quoted throughout as "Reich."; Shelley's 'Birds of Africa' as "Shelley"; and Stark and Sclater's 'Fauna of South Africa, Birds' is referred to as "Stark" or "Stark & Sclater" according to the volume quoted, vols. i. and ii. having been written by the late Dr. Stark, while Mr. W. L. Sclater was responsible for the authorship of volumes iii. and iv.

Localities where Birds were collected.

Molopo River.	3000 ft.	8th–25th April.
Kakia.	3000 ft.	6th May.
Lehutitu.	3000 ft.	15th–30th May.
Okwa.	3000 ft.	6th June.
Ghanzi.	3000 ft.	13th–16th June.
Tsau.	2700 ft.	22nd–30th June.
Lake Ngami.	2700 ft.	20th June–12th July & 5th September.
Tamalakan River.	2700–3000 ft.	22nd July and 24th August.
Mababe Flats.	2900 ft.	24th July–15th August.
Botletle River.	3000 ft.	1st December.
Vryburg.		18th February–10th April.

LAMPROCOLIUS SYCOBIUS (Licht.).

Lamprocolius sycobius Stark, i. p. 41.

Lamprocolius chalybæus sycobius Reich. ii. p. 688.

a, b. ♂ ♀. Lake Ngami, 2700 ft., 8th July. (Nos. 549, 550, *G. L.*)

Iris orange; bill and feet black.

I am very doubtful as to the advisability of separating the southern form of this Glossy Starling from *L. chalybæus* (Hempr. & Ehr.) of Abyssinia, &c. The ear-coverts in the southern bird certainly seem to form a more distinct spot.

LAMPROTORNIS AUSTRALIS (Smith).

Lamprocolius australis Stark, i. p. 35.

Lamprotornis australis Reich. ii. p. 707.

a. ♀. Lake Ngami, 2700 ft., 9th July. (No. 58, *R. B. W.*)

Iris dark brown; bill and feet black.

A somewhat worn example of Burchell's Glossy Starling.

DILOPHUS CARUNCULATUS (Gmel.).

Dilophus carunculatus Stark, i. p. 23.

a, b. ♂ vix ad. et ♀. Lake Ngami, 2700 ft., 5th July. (Nos. 541, 542, *G. L.*)

Iris dark brown; bare space round the eye yellow; bill brown; feet dark brown.

The Wattled Starling is a common bird in Ngamiland, and is usually to be seen feeding along the edges of the flood-water as it recedes from the inundated native fields and gardens.

BUPHAGA ERYTHRORHYNCHA (Stanl.).

Buphaga erythrorhyncha Stark, i. p. 20.

a. ♀. Lake Ngami, 2700 ft., 5th July. (No. 544, *G. L.*)

Iris orange; eyelid yellow; bill red; feet black.

A dark specimen in freshly-moulted plumage.

The Red-billed Ox-pecker was not a common bird in Ngamiland. The few which were met with seemed to prefer mules and horses to oxen, and have gained a bad reputation on account of their habit of tearing open old sores on horses' backs. They move about on their hosts much after the manner of a Woodpecker on a tree, and when disturbed fly off to the nearest tree. I have never seen these birds on the ground, and the only note I have ever heard them utter is a low squeak or whistle.

VIDUA REGIA (Linn.).

Vidua regia Stark, i. p. 148.

a. ♂. Molopo River, 3000 ft., 8th April. (*G. L.*)
b. ♀ imm. Okwa, 3000 ft., 6th June. (No. 45, *R. B. W.*)
c. ♂ imm. Ngami, 2700 ft., 7th July. (No. 548, *G. L.*)

♂ ad. Iris hazel; bill and feet scarlet.

♂ imm. Iris hazel; bill and feet brown.

♀ imm. Iris brown; bill pinkish horn-coloured; feet dark reddish-brown.

The beautiful little Shaft-tailed Widow-bird was almost always to be seen in the Kalahari around the water-holes, but was never found far from water. It is an extremely lively bird, and the males may constantly be seen chasing each another. During the winter months it is met with in small flocks.

QUELEA QUELEA (Linn.).

Quelea quelea Stark, i. p. 122.

a. ♂. Lake Ngami, 2700 ft., 5th July. (No. 543, *G. L.*)

Iris hazel; bill pink; feet brown.

During the winter months the number of Red-billed Weaver-Finches in Ngamiland is quite incredible. They assemble in enormous flocks, and spend the day feeding in the dry bush and cultivated lands. Towards sunset they return to roost in the vast reed-beds of the Okavango marshes, and it is then that one realizes their numbers. For many miles along the edge of the marshes the air is filled with an incessant stream of birds, the flocks varying in size from a few hundred individuals to hundreds of thousands.

SPOROPIPES SQUAMIFRONS (Smith).

Sporopipes squamifrons Stark, i. p. 86.

a, b. ♂. Molopo River, 3000 ft., 20th April. (Nos. 31, 32, *R. B. W.*)

Iris dark brown; bill brown or pinkish; feet grey-brown.

Vast numbers of the Scaly-feathered Weaver-Finch were always to be found in the dry pans of the Kalahari, where they congregate to feed on the seeds of the fine grasses.

PYTELIA MELBA (Linn.).

Pytelia melba Stark, i. p. 89.

a. ♂. Botletle River, 3000 ft., 1st Dec. (No. 63, *G. L.*)

b. ♀. Lake Ngami, 2700 ft., 6th July. (No. 52, *R. B.W.*)

♂. Iris hazel; bill red; feet grey.

♀. Iris chestnut; bill red; feet brown.

The Southern Red-faced Weaver-Finch was not a very common bird in Ngamiland, but was more numerous towards the south of the Botletle River. As, however, it generally frequents thick bush, and is not often seen, it may be more plentiful than I supposed. I have never been able to identify the note of any species of *Pytelia*.

URÆGINTHUS DAMARENSIS Reich.

Uræginthus bengalus damarensis Reich. iii. p. 209.

a, b. ♂ ♀. Tsau, 2700 ft., 30th June. (Nos. 523, 524, *G. L.*)

Iris hazel; bill dull purple; feet brown.

This bird is distinctly paler than typical *U. angolensis* (Linn.). Hitherto the British Museum possessed only two examples, procured respectively at Elephant Vley, Damaraland, and Ondonga, Ovampoland, by C. J. Andersson.

The Damaraland Cordon-bleu was not uncommon in Ngamiland, frequenting chiefly the thickets of bush along the edges of the marshes.

URÆGINTHUS GRANATINUS (Linn.).

Estrilda granatina Stark, i. p. 104.

Uræginthus granatinus Reich. iii. p. 210.

a, b. ♂ imm. Lehutitu, 3000 ft., 21st–30th May. (Nos. 509, 516, *G. L.*)

c. ♀ imm. Molopo, 3000 ft., 25th April. (No. 503, *G. L.*)

Iris hazel; bill pink; feet black.

All immature birds; the males are especially interesting, being in a transitional stage, with the adult plumage partially assumed on the head and throat only.

The Grenadine Waxbill was met with commonly in Ngamiland and the Kalahari. It seems to prefer arid stony country with low scrubby thorn-bush rather than the neighbourhood of much water. I have never seen this Finch in flocks. I found a nest in mid-winter which I am almost certain belonged to this bird; it was placed in a low thorn-bush, and was loosely built of fine grass, with a domed top. It contained two white eggs. I believe that many of the small Finches sometimes nest in South Africa in mid-winter.

TEXTOR NIGER (Smith).

Textor niger Stark, i. p. 78.

a, b. ♂ imm. Tsau, 2700 ft., 30th June. (Nos. 527, 528, *G. L.*)

c, d. ♂. Lake Ngami, 2700 ft., 2nd July. (Nos. 537, 538, *G. L.*)

Iris brown; bill orange; feet pale orange in the adult, dark orange-brown in the immature.

The Buffalo Weaver-Finch was not met with until we reached Ngamiland, where it was plentiful. It chiefly frequents the big trees in the neighbourhood of water. Some large flocks were seen in the early part of August, while at the same time others were busily engaged in building or repairing the nests, which are large untidily built structures of thin sticks, placed high up in the tall trees. There are generally several in the same tree. This is a noisy bird, but some of its notes are not unmusical.

PLOCEIPASSER MAHALI Smith.

Ploceipasser mahali Stark, i. p. 83.

Plocepasser mahali Reich. iii. p. 11.

a. ♀. Molopo River, 3000 ft., 9th April. (No. 5, *R. B. W.*)

Iris hazel; bill and feet horn-coloured.

The White-browed Weaver-bird was met with everywhere in the bush-country of Bechuanaland. It is a lover of acacia-trees especially, and usually builds in them. The nest is more untidy than that of any other species of Weaver-bird, and the ends of the grass are left sticking out in all directions. It is an interesting fact that these birds seem to inhabit their nests all the year round, roosting in them during the winter, when the fiercest battles often take place over disputed possession. I have occasionally heard them singing delightfully in November.

HYPHANTORNIS XANTHOPS Hartl.

Hyphantornis jamesoni Stark, i. p. 65.

Hyphantornis xanthops Ogilvie-Grant, Trans. Zool. Soc. xix. p. 278 (1910).

a, b. ♂ ♀. Lake Ngami, 2700 ft., 12th July. (Nos. 61, 62, *R. B. W.*)

Iris cream-coloured; bill black; feet brown.

A few examples of Jameson's Weaver-bird were seen on the densely-wooded islands in the Okavango marshes, but they were rather uncommon. They seemed to keep almost entirely to the larger trees, especially to those which had festoons of creepers hanging from them.

HYPHANTORNIS COLLARIS (Vieill.).

Ploceus collaris Reich. iii. p. 61.

a. ♂ imm. Lake Ngami, 2700 ft., 3rd July. (No. 510, *G. L.*)

Iris hazel; bill black; feet brown.

This immature specimen of a Weaver-bird in freshly-moulted plumage appears to be referable to *H. collaris.* It agrees in most of the essential points, especially in the colour of the bright canary-yellow wing-lining and under wing-coverts; the bill is somewhat shorter and smaller than in any specimen in the British Museum Collection, but there are no young birds of a similar age for comparison. The primaries are rather distinctly edged with yellow, but are in no way worn; the sides and flanks are brownish-buff, a character of immaturity.

PASSER MOTITENSIS Smith.

Passer motitensis Stark, i. p. 162; Reich. iii. p. 240.

a. ♀. Lehutitu, 3000 ft., 19th May. (No. 507, *G. L.*)

Iris dark brown; bill and feet black.

This Sparrow was often seen in the neighbourhood of Lehutitu, among the low thorn-bushes surrounding the salt-pans. It is rather a conspicuous bird, and was frequently to be seen perched on top of a bush uttering a peculiar loud whistle.

PASSER DIFFUSUS Smith.

Passer diffusus Ogilvie-Grant, Trans. Zool. Soc. xix. p. 304 (1910).

a. ♀. Molopo River, 3000 ft., 20th April. (No. 26, *R. B. W.*)

Iris brown; bill black; feet brown.

The Southern Grey-headed Sparrow, although nowhere very numerous, is pretty universally distributed throughout the Kalahari; I noticed more along the Molopo River than elsewhere.

Dr. Reichenow has separated examples of the Sparrow from Damaraland, &c., under the name of *georgicus* [*cf.* Vög. Afr. iii. p. 231].

MIRAFRA AFRICANOIDES Smith.

Mirafra africanoides Stark, i. p. 210; Shelley, iii. p. 58; Reich. iii. p. 333.

a. ♀. Lehutitu, 3000 ft., 15th May. (No. 38, *R. B. W.*)

b. ♂. Okwa, 3000 ft., 6th June. (No. 518, *G. L.*)

Iris hazel; bill brown; feet brown.

The Fawn-coloured Lark is found throughout the Kalahari, frequenting the most arid and waterless tracts of the more open bush-veldt. It is generally found singly or in pairs, and is rather a shy bird. It has a very sweet song. I once wounded one of these Larks and could not find it in the grass. While searching for it I suddenly heard, almost at my feet, a low sweet song, and I then saw the missing Lark standing under a small bush and singing as if its life depended on it. It had a broken wing, and it thought, I am certain, that if it could conceal this from me I should not attempt to catch it. I have twice had a similar experience with this species, and I never felt more like an assassin.

MIRAFRA SABOTA Smith.

Mirafra sabota Stark, i. p. 208; Shelley, iii. p. 36; Reich. iii. p. 332.

a, b. ♂. Lehutitu, 3000 ft., 15th & 19th May. (Nos. 39, *R. B. W.*, & 508, *G. L.*)

Iris hazel or brown; bill horn-coloured; feet brown.

The Sabota Lark was fairly common in the Kalahari and Ngamiland. It perches a great deal upon bushes and in trees.

MIRAFRA RUFOPILEA (Vieill.).

Mirafra rufopilea Stark. i. p. 218; Shelley, iii. p. 46; Reich. iii. p. 342.

a. ♂. Lehutitu, 3000 ft., 29th May. (No. 513, *G. L.*)

Iris hazel; bill black; feet brown.

This is a quite freshly-moulted example of *M. rufopilea* with the general colour of the upper parts greyish; the chestnut and black-barred middles of the feathers are almost entirely masked by the long greyish lateral fringes, which give a hoary appearance to the plumage. The pale cinnamon feathers of the breast and belly also have much paler margins, giving the under parts a paler appearance. At first sight this specimen appears so different from the specimens of *M. rufopilea* in the British Museum that it might easily be mistaken for a desert form; but I am satisfied that this is not the case.

This group of Larks is but sparsely represented in the Kalahari or Ngamiland, as there is too much forest country to suit their habits.

CERTHILAUDA KALAHARIÆ, sp. n.

? *Certhilauda rufula,* Fleck (nec Vieill.), J. f. O. 1894, p. 411.

Adult male. Most nearly allied to *C. arenaria* Reich. from Great Namaqualand, but differs in having the general colour of the upper parts (with the exception of the upper tail-coverts, which are rufous) brown instead of rufous. Each feather of the mantle and back is dark brown down the shaft, paler brown towards the edge, and fringed on the sides with pale isabelline, likewise tipped with white. Iris hazel:

bill horn-coloured; feet dull flesh-coloured. Wing 3·6; tail 2·2 inches.

The specimens of *C. arenaria* with which the present bird has been compared were killed by Andersson in Great Namaqualand at exactly the same time of year, 20th to 29th of May, 1862–64: the differences between the two forms is very marked.

Hab. North Kalahari.

Type in the British Museum. ♂. No. 43. Lehutitu, 29. v. 09. R. B. Woosnam Coll.

The Kalahari Long-billed Lark was seen occasionally in the more open parts of the Kalahari, but not in Ngamiland.

ANTHUS RUFULUS Vieill.

Anthus rufulus Shelley, ii. p. 319.

Anthus rufulus cinnamomeus Reich. iii. p. 313.

a. ♂. Lake Ngami, 2700 ft., 1st July. (No. 530, *G. L.*)

Iris, bill, and feet brown.

This bird, a freshly-moulted specimen, has the general colour of the plumage of the upper parts much greyer than is usual in *A. rufulus*, and in this respect closely resembles *A. campestris*. It has the chest, however, strongly streaked with black.

The Lesser Tawny Pipit was not uncommon in Ngamiland on the open grass-flats and cultivated native lands. I have occasionally heard it sing a short but quite melodious song, while perched on some low bush.

ANTHUS PYRRHONOTUS (Vieill.).

Anthus pyrrhonotus Stark, i. p. 250; Shelley, ii. p. 307.

Anthus leucophrys Reich. iii. p. 316.

a. ♀. Lake Ngami, 2700 ft., 1st July. (No. 531, *G. L.*)

Iris, bill, and feet brown.

MACRONYX AMELIÆ Tarrag.

Macronyx ameliæ Stark, i. p. 240; Reich. iii. p. 324.

a. ♂ imm. Mababe Flats, 3000 ft., 30th July. (No. 74, *R. B. W.*)

Iris, bill, and feet dark brown.

This example, in immature plumage, has the feathers of the throat and breast orange mixed with carmine, especially the former. The chest-band is buff streaked with black, producing a spotted appearance.

Only a single pair of Pink-throated Long-claws was met with in Ngamiland. They were found on a broad open flat surrounded by marsh-land. It is curious that in a country apparently so suitable for these birds no other specimens should have been seen.

CINNYRIS MARIQUENSIS Smith.

Cinnyris mariquensis Stark, i. p. 279 ; Reich. iii. p. 479.

a. ♂. Mababe Flats, 3000 ft., 9th Aug. (No. 87, *R. B. W.*)

Iris dark brown ; bill and feet black.

Dr. Reichenow has separated Damaraland examples of this species under the name of *C. m. ovamboensis* (*cf.* Vög. Afr. iii. p. 480), but the distinguishing characters attributed by him to this form are not borne out by specimens in the British Museum.

Only a single specimen of this Sun-bird was seen in Ngamiland. It was flying about the tops of the trees in the mopani forest near the marshes, but as the season was mid-winter and the leaves were falling, this seemed a curious place for a Sun-bird to be searching for food.

ANTHOTHREPTES ZAMBESIANA (Shelley).

Anthothreptes zambesiana Ogilvie-Grant, Ibis, 1909, p. 286 ; id. Trans. Zool. Soc. xix. p. 320 (1910).

♂. Mababe Flats, 2900 ft., 24th July. (No. 66, *R. B. W.*)

Iris dark brown ; bill and feet black.

This Collared Sun-bird was not at all common in Ngamiland in winter, but it is possible that during the summer months there may be some visitors from the Zambesi. It was seen only on the densely forested islands in the marshes north of the Lake, where there were masses of flowering creepers on the trees.

PARUS CINERASCENS Vieill.

Parus intermedius Shelley, Birds Afr. ii. pp. 223, 243 (1900).

Parus parvirostris Shelley, l. c. pp. 223, 243.

Parus afer damarensis Reich. Orn. Monatsb. x. p. 77 (1902).

Pentheres cinerascens Sharpe, Ibis, 1904, pp. 342, 343.

a. ♂. Molopo River, 3000 ft., 8th April. (No. 3, *R. B. W.*)

Iris dark brown; bill black; feet grey.

The Titmouse procured by Mr. Woosnam is no doubt an example of the true *P. cinerascens* Vieill. Sharpe, in the paper quoted above, has shown that the S. African species have been confused by Shelley (Birds Afr. ii. p. 240), who described the present species as *P. afer*, which is really a brown-backed form. This species was subsequently redescribed by Dr. Reichenow as *P. a. damarensis*.

P. parvirostris Shelley is founded on an immature example of *P. cinerascens* with a smaller bill, and the feathers of the crown dull black, both signs of immaturity.

The Grey Titmouse was met with sparingly throughout the Kalahari in the acacia-forest, and was not common in Ngamiland. I have found it in the Orange River Colony in the most barren country, among kopjes, far from any trees or bushes.

PARUS NIGER Vieill.

Parus niger Stark, i. p. 307; Reich. iii. p. 510.

a. ♂. Mababe Flats, 2900 ft., 24th July. (No. 70, *R. B. W.*)

b. ♂. Lake Ngami, 2700 ft., 5th Sept. (No. 97, *R. B. W.*)

Iris dark brown; bill black; feet dark grey.

No Black Titmice were met with during the journey through the Kalahari, but a few were seen in Ngamiland; they seemed chiefly to frequent the mopani forest towards the north-east of the Lake.

ANTHOSCOPUS SMITHI (Jard. & Selby).

Anthoscopus smithi Sharpe, Ibis, 1904, pp. 344–345.

Anthoscopus minutus Reich. iii. p. 526.

a, b. ♂ ♀. Molopo River, 3000 ft., 19th April. (Nos. 19, 20, *R. B. W.*)

Iris dark brown; bill and feet dark grey.

In his paper on the birds from the District of Deelfontein, in Cape Colony, the late Dr. Sharpe very clearly shewed the differences between *A. minutus* Shaw and *A. smithi* Jard., and cleared up the general muddle which had previously existed (*cf.* 'Ibis,' 1904, pp. 343–5). Unfortunately, Dr. Reichenow (Vög. Afr. iii. p. 526), writing immediately afterwards, transferred the name of *A. minutus* to the bird from the Transvaal, which Sharpe had called *A. smithi*, while the bird from the Cape Colony, which Sharpe shewed to be the *A. minutus* Shaw, Dr. Reichenow has renamed *A. m. levaillanti* Reich. He has further separated the birds from Damaraland as *A. m. damarensis.* I cannot agree with Dr. Reichenow's reasons for making these changes, and think that Sharpe's conclusions were perfectly correct. In any case, the Damaraland birds cannot possibly be distinguished from specimens of *A. smithi* from the Transvaal. After comparing nearly a dozen specimens from each of these localities, I find that any slight differences in the two series are purely individual. Freshly-moulted birds, such as those in the present collection, are always lighter and greyer on the head and mantle than those in more worn plumage.

A few small parties of this Penduline Titmouse were met with in the acacia-forest along the Molopo River; but as we travelled north it seemed to disappear, and was not seen in Ngamiland, where its place is taken, according to Stark, by Andersson's Penduline Tit (*A. caroli*).

LANIARIUS ATROCOCCINEUS (Burch.).

Laniarius atrococcineus Stark, ii. p. 31; Reich. ii. p. 587.

a. ♂. Molopo, 3000 ft., 25th April. (No. 504, *G. L.*)

Iris dark brown; bill and feet black.

The Black and Crimson Shrike was met with throughout the whole of the Kalahari, and was plentiful in Ngamiland. It has a loud flute-like note, generally uttered from the middle of some dense thorn-bush, and although so brightly coloured it is difficult to see and still more difficult to get near.

LANIARIUS GUTTATUS Hartl.

Dryoscopus guttatus Stark, ii. p. 28.

Laniarius major guttatus Reich. ii. p. 581.

a, b. ♂ ♀. Lake Ngami, 2700 ft., 2nd July. (Nos. 534, 535, *G. L.*)

Iris dark brown; bill black; feet dark slate-coloured.

Hartlaub's Shrike was not met with until we reached Ngamiland, where it was not uncommon. It is usually to be seen singly or in pairs, but sometimes in small parties. It has a great variety of chattering or clicking notes, and the male occasionally utters a beautiful long-drawn bell-like note which can be heard at a great distance.

DRYOSCOPUS CUBLA HAMATUS Hartl.

Dryoscopus cubla hamatus Reich. ii. p. 594.

a, b. ♂ ♀. Tamalakan R., 2700 & 3000 ft., 22nd July and 24th August. (Nos. 96, *R. B. W.*; 561, *G. L.*)

Iris orange; bill black, light in female; feet grey.

This Shrike was not met with during our journey through the Kalahari; it has a rather striking note, which was not heard until the mopani forest north-east of the Lake was reached. There individuals were not uncommon.

TELEPHONUS AUSTRALIS (Smith).

Telephonus australis Stark, ii. p. 22.

Pomatorhynchus australis Reich. ii. p. 544.

a. ♂. Lehutitu, 3000 ft., 15th May. (No. 506, *G. L.*)

Iris grey; bill black; feet grey.

The sexes of the Three-streaked Bush-Shrike are generally described as being alike in plumage; but the adult male appears to differ from the adult female in having the crown dark ashy-brown instead of earthy-brown.

UROLESTES MELANOLEUCUS (Jard. & Selby).

Urolestes melanoleucus Stark, ii. p. 3; Reich. ii. p. 627.

a, b. ♀. Lake Ngami, 2700 ft., 9th & 10th July. (Nos. 553, 554, *G. L.*)

Iris dark brown; bill and feet black.

The Long-tailed Shrike is plentiful along the Molopo River. From thence northwards it is met with sparingly throughout the Kalahari to Ngamiland, where it is very numerous; it also occurs along the Botletle River. It has a loud note and also a scolding chattering one. It is fond of perching during the heat of the day on the lower boughs of umbrella-like acacia-trees, and is then rather less noisy than in the mornings and evenings.

NILAUS BRUBRU (Lath.).

Nilaus brubru Stark, ii. p. 16; Reich. ii. p. 538.

a–c. ♂ ♀. Molopo River, 3000 ft., 12th & 19th April. (Nos. 9, 10, 25, *R. B. W.*)

Iris dark brown; bill black, lower mandible lighter; feet grey.

The Brubru Shrike was found plentifully along the Molopo River and here and there throughout the Kalahari northwards to Ngamiland. Stark writes that this Shrike is rather a silent bird, while *N. nigritemporalis*, the more northern form, according to Alexander, has a loud note. All the Brubru Shrikes I have met with in S. Africa, including the three specimens mentioned here, had a strikingly loud note.

EUROCEPHALUS ANGUITIMENS Smith.

Eurocephalus anguitimens Stark, ii. p. 13; Reich. ii. p. 525.

Ad. Lake Ngami, July. (*G. L.*)

PRIONOPS TALACOMA Smith.

Prionops talacoma Stark, ii. p. 51; Reich. ii. p. 528.

a. ♂. Mababe Flats, 2900 ft., 24th July. (No. 69, *R. B. W.*)

Iris yellow; bill black; feet red-brown.

A few of these Helmet-Shrikes were seen in the mopani forest north-east of Lake Ngami, but they were not very common. Even towards the end of the winter they were still in small parties.

CALAMOCICHLA GRACILIROSTRIS Hartl.

Bradypterus babæcula Stark (nec Vieill.), ii. p. 102.

Lusciniola gracilirostris Reich. iii. p. 583.

Calamocichla gracilirostris Neumann, Nov. Zool. xv. p. 249 (1908).

a. ♀. Mababe Flats, 3000 ft., 10th August. (No. 88, *R. B. W.*)

Iris brown; bill brown; feet black.

This Reed-Warbler appeared to be pretty common in the Okavango marshes, but as it always kept to the middle of the dense beds of tall reeds it was more often heard than seen, and was very difficult to procure.

BRADYPTERUS BEDFORDI, sp. n.

Adult male. Differs from *B. brachypterus* (Vieill.) in having the general colour above much darker, deep sooty-brown, with a slight rufous tinge most marked on the upper tail-coverts; the under parts are dull silvery white (almost tinged with greyish) except the flanks and under tail-coverts which are dull brownish-buff. The wing-coverts have very distinct whitish-brown margins and the outer tail-feathers are blackish with strongly contrasting buff tips. Iris hazel; bill and feet dark olive-grey.

Total length 140 mm.; wing 57; tail 62; tarsus 23.

Hab. Mababe Flats, north of Lake Ngami.

Type in the British Museum. ♂. No. 71. Mababe, 25. vii. 09. R. B. Woosnam Coll.

This is a most interesting bird, and apparently very distinct from all other known species of the group.

Only one example of this Reed-Warbler was met with in Ngamiland. It was seen early one morning on the edge of the marshes perched on the top of a reed and vigorously giving forth its loud notes, so unmistakably *Bradypterus*-like, that it aroused my cupidity.

Probably it is not such an uncommon bird as we thought.

for we visited Ngamiland in winter, when its song would seldom be heard. Without its note to guide us, the bird might long escape notice, owing to its habit of skulking in thick cover.

PRINIA FLAVICANS (Vieill.).

Prinia flavicans Stark, ii. p. 136; Reich. iii. p. 592.

a, *b*. ♂ ♀. Molopo River, 3000 ft., 20th April. (Nos. 27, 28, *R. B. W.*)

c, *d*. ♂ & ♂ imm. Kakia, 3000 ft., 6th May. (Nos. 34, 35, *R. B. W.*)

e. ♀ imm. Lehutitu, 3000 ft., 19th May. (No. 41, *R. B. W.*)

Iris hazel; bill black; feet brown.

The Black-chested Wren-Warbler is found throughout the Kalahari. It frequents the patches of open country or low bush, especially around the large salt-pans. It is a very active lively little bird, constantly on the move from one bush to another, and frequently perching on the top. It jerks its long tail up over its back, and utters a stream of clicking notes, like the sound made by the winding of a large fishing-reel.

PRINIA MYSTACEA Rüpp.

Prinia mystacea Stark, ii. p. 135; Reich. iii. p. 590.

a–c. ♂. Tamalakan River, 2700 ft. and 3000 ft., 22nd July & 24th Aug. (Nos. 64, 94, 95, *R. B. W.*)

d–h. ♂ ♀. Mababe Flats, 3000 ft., 6th–9th Aug. (Nos. 75, 79, 82, 83, 86, *R. B. W.*)

Iris hazel or light brown; bill black; feet light brown.

These Wren-Warblers were particularly plentiful along the edges of the Okavango marshes; they were always seen in small parties, and upon being disturbed from the grass or rushes would fly up into the trees and there remain hopping about and scolding incessantly at the intruder until he moved away. Both male and female join in this remonstrance; there is considerable difference in their notes, that of the female being generally shriller.

CISTICOLA RUFILATA Hartl.

Drymoica rufilata Hartl. Vög. Ost-Afr. p. 238 (1870); Gurney in Andersson, Birds Damaraland, p. 87 (1872).

Cisticola chiniana Reich. iii. p. 546 [part.].

a. ♀. Molopo River, 3000 ft., 19th April. (No. 21, *R. B. W.*)

Iris hazel; bill dark horn-coloured; feet flesh-coloured.

This very distinct species of Grass-Warbler was founded by Hartlaub on birds obtained by Andersson in Damaraland. By Sharpe (Cat. B. Brit. Mus. vii. p. 283) it was regarded as synonymous with *C. subruficapilla* (Smith), and by Dr. Reichenow is included under *C. chiniana* (Smith). The British Museum now possesses a considerable series of examples of this species, and they are very easily distinguished by the light chestnut colour of the head and tail-feathers. The wing in males varies from 66–69 mm. and in females from 54–59 mm.

This bird was common among the grass and scrub on the banks of the Molopo in places where it was not too heavily timbered. This was the only specimen obtained with so red a tail; there was nothing in its notes or habits to separate it from other species.

CISTICOLA CISTICOLA UROPYGIALIS (Fras.).

Cisticola cisticola uropygialis Reich. iii. p. 556.

a. ♀. Mababe Flats, 3000 ft., 30th July. (No. 73, *R. B. W.*)

Iris, bill, and feet brown.

Only one specimen of this form of the Mediterranean Grass-Warbler was obtained in Ngamiland, but it is probably not uncommon. It seems to frequent comparatively marshy ground with long rough grass or rushes in preference to the dry open bush-veldt.

CISTICOLA KALAHARI Ogilvie-Grant.

Cisticola kalahari Ogilvie-Grant, Bull. B. O. C. xxv. p. 121 (1910).

a–c. ♂ ♀. Molopo River, 3000 ft., 16th & 20th April. (Nos. 29, 30, *R. B. W.*, & 502, *G. L.*) [Types of the species.]

d, e. ♂. Mababe Flats, 3000 ft., 24th & 30th July. (Nos. 67, 72, *R. B. W.*)

The adult male and female are most nearly allied to *C. lavendulæ* Ogilvie-Grant from the Somaliland coast, but differ in having the general colour of the upper parts somewhat darker, the basal half of the feathers being dark grey instead of whitish, and the rump pale rufous-buff, contrasting with the colour of the back. The bird resembles *C. lavendulæ* in the shape of the wing, the first primary being comparatively short and narrow, while the third and fourth are longest, slightly longer than the second. The iris is hazel; bill horn-coloured and feet flesh-coloured in April, light brown in July.

Male. Total length 102 mm.; wing 52; tail 38; tarsus 20.

Female. Total length 97 mm.; wing 47; tail 36; tarsus 19.

These little Grass-Warblers were met with throughout the Kalahari wherever there was open country. They have a curious habit of flying to a great height with a succession of quick jerky wing-beats, each jump being accompanied by a sharp clicking note; this is their most conspicuous feature. They seem to prefer dry grass-country to low-lying marshy ground, where *C. cisticola uropygialis* is more often met with.

CISTICOLA TINNIENS (Licht.).

Cisticola tinniens Stark, ii. p. 147; Reich. iii. p. 551.

a, b. ♀. Mababe Flats, 3000 ft., 10th & 15th Aug. (Nos. 89, *R. B. W.*, & 581, *G. L.*)

c, d. ♂. Tamalakan River, 2700 ft., 22nd July. (Nos. 63, *R. B. W.*, & 560, *G. L.*)

Iris hazel; bill dark brown, lower mandible lighter; feet light brown.

Levaillant's Grass-Warbler is very numerous throughout the Okavango marshes; it may sometimes be seen among the thick belts of bush bordering swampy ground, but it principally frequents the tall belts of papyrus and pampas grass along the watercourses. It has a great variety of loud notes, many of which resemble those of other birds.

CISTICOLA SUBRUFICAPILLA (Smith).

Cisticola subruficapilla Stark, ii. p. 151; W. L. Sclater, Ibis, 1911, p. 313.

a–g. ♂ ♀. Mababe Flats, 3000 ft., 24th July–9th Aug. (Nos. 68, 76, 77, 78, 79, 84, 85, *R. B. W.*)

Iris hazel; bill light brown, under mandible darker; feet light brown.

Specimens of the Western Grey-backed Grass-Warbler killed in July and August present, on the whole, a very uniform appearance, the black stripes on the feathers of the upper parts being narrower than in examples of the more eastern *C. chiniana* Smith; the under parts of the body also are distinctly greyer and less buff, especially on the sides and flanks.

This *Cisticola* is a lover of bushes and rough ground in the neighbourhood of water, but in my experience it never frequents the reed-beds, and I have often found it at considerable distances from water. It is a very fearless little bird and its general habits much resemble those of the Common Hedge-Sparrow; the only note I have heard it utter is a low scolding one like that of the Marsh-Titmouse.

SYLVIELLA RUFESCENS FLECKI Reich.

Sylviella rufescens Stark, ii. p. 115 [part.].

Sylvietta flecki Reich. iii. p. 626, pl. xxiii. fig. 4.

a–c. ♂. Molopo River, 3000 ft., 19th April. (Nos. 16, 17, 18, *R. B. W.*)

d, e. ♀. Lake Ngami, 2700 ft., 28th June & 3rd July. (Nos. 49, *R. B. W.*, & 539, *G. L.*)

Iris hazel; bill dark horn-coloured; feet reddish-brown.

All the specimens in the present collection are referable to the rather paler western form of this Crombec, which has the upper parts greyer and the under parts usually of a paler buff; though in the latter respect some individuals from Damaraland are not distinguishable from some of the paler-breasted examples of typical *S. rufescens* (Vieill.) from the Transvaal.

This Crombec is rather a curious little bird, usually frequenting low scrub, but I have occasionally seen it high up in tall trees creeping along the boughs like a Nuthatch. It keeps up an incessant twittering note.

CAMAROPTERA SUNDEVALLI Sharpe.

Camaroptera sundevalli Stark, ii. p. 113.

Camaroptera griseoviridis sundevalli Reich. iii. p. 618.

a. ♂. Lake Ngami, 2700 ft., 28th June. (No. 48, *R. B. W.*)

Iris hazel; bill dark horn-coloured; feet brown.

Sundevall's Bush-Warbler was not seen in the Kalahari, but in Ngamiland it was plentiful. I could find no difference between the notes and habits of this species and those of *C. griseoviridis* from Uganda and the Congo. Its note is exactly like that of the Common Stonechat and its habits like those of the Common Wren.

EREMOMELA FLAVIVENTRIS (Burch.).

Eremomela flaviventris Stark, ii. p. 106; Reich. iii. p. 634; Ogilvie-Grant, Bull. B. O. C. xxv. pp. 120, 121 (1910).

a, b. ♂ ♀. Molopo River, 3000 ft., 19th April. (Nos. 14, 15, *R. B. W.*)

Iris hazel; bill and feet blackish.

The range and synonymy of this species will be found fully discussed in my paper quoted above.

The Yellow-bellied Bush-Warbler was only seen on the Molopo River, and is apparently an uncommon bird. Its habits do not differ, so far as I have observed them, from those of other members of the genus.

EREMOMELA USTICOLLIS Sund.

Eremomela usticollis Stark, ii. p. 109; Reich. iii. p. 641.

a–c. ♂ ♀. Molopo River, 3000 ft., 12th April. (Nos. 7, 8, 12, *R. B. W.*)

d–f. ♂ ♀. Lake Ngami, 2700 ft., 8th July. (Nos. 55, 56, 57, *R. B. W.*)

Iris pale yellow; bill and feet light brown.

Generally speaking, examples from the Transvaal are rather more strongly marked with buff on the breast and belly than those from Damaraland, but the difference is not constant, and the western birds ought not to be separated.

This little Bush-Warbler was obtained on the Molopo River and again in Ngamiland, but was not observed in the dry Kalahari. It is generally to be seen in small parties up to six or seven, which, in my experience, always frequent the topmost branches of acacia and other trees, where they are very active in their search for small insects.

APALIS FLAVIDA (Strickl.).

Chlorodyta flavida Stark, ii. p. 125.

Apalis flavida Reich. iii. p. 611.

a. ♂. Tamalakan River, 2700 ft., 22nd July. (No. 66, *R. B. W.*)

b. ♂. Mababe Flats, 3000 ft., 8th August. (No. 80, *R. B. W.*)

Iris very light hazel; bill black; feet dark brown.

Stark's description of this species is misleading in several particulars: the chin is white, not yellow; there is no spot of dusky in front of the eye; nor are there purer yellow patches on either side of the rump.

The Yellow-throated Bush-Warbler was not uncommon in Ngamiland, chiefly frequenting the mixed forest along the edges of the marshes and not the drier acacia-forest. It has a surprisingly loud note for so small a bird.

SPILOPTILA MALAPOENSIS Sharpe.

Spiloptila malapoensis Sharpe, Bull. B. O. C. xiii. p. 80 (1903).

a, b ♂ ♀. Lehutitu, 3000 ft., 29th May. (Nos. 40, 42, *R. B. W.*)

Iris hazel; bill black; feet brown.

This Wren-Warbler is a rather paler form of *S. ocularis* Smith.

Sharpe gives the locality of the type as "Malope River, Mashonaland," but he should have written Southern Bechuanaland. In 'The Ibis,' for 1882, p. 237, Shelley publishes a list of the localities visited by Jameson, and the "Malope River" is placed at "lat. 25° 45′, long. 25° 35′," which shews that the Molopo River of modern maps is the spot indicated.

GEOCICHLA LITSIPSIRUPA (Smith).

Turdus litsipsirupa Stark, ii. p. 173.

Geocichla litsipsirupa Reich. iii. p. 679.

a. ♂. Molopo River, 3000 ft., 12th April. (No. 11, *R. B. W.*)

b. ♀. Lake Ngami, 2700 ft., 10th July. (No. 556, *G. L.*)

Iris dark brown; bill, ♂ dark brown, ♀ black; feet, ♂ pale greenish-yellow, ♀ light brown.

This Thrush was seen along the Molopo River and in Ngamiland, but not during the journey through the Kalahari. It is almost always found in pairs, and its habits closely resemble those of the Common Thrush, except that when disturbed from the ground it usually flies up to some conspicuous place at the top of a tree. It is rather a wild bird, and I have never heard it sing.

COSSYPHA HEUGLINI Hartl.

Cossypha heuglini Stark, ii. p. 211; Reich. iii. p. 760.

a. ♀. Lake Ngami, 2700 ft., 11th July. (No. 558, *G. L.*)

Iris dark brown; bill black; feet dark brown.

The occurrence of this Robin-Chat at Lake Ngami greatly extends its known range, but is not surprising, as many of the species met with on the Zambesi make their way westwards along the Botletle River to the Lake.

Heuglin's Robin-Chat was not met with until Ngamiland was reached; here a few were seen or heard on the heavily-wooded tropical-looking islands in the Okavango marshes. They were not breeding during our winter visit to Ngamiland, and consequently the beautiful song of the male bird was not to be heard; but even when not in song this bird utters a variety of loud and musical notes in the early morning and evening.

ERYTHROPYGIA PAENA Smith.

Erythropygia pæna Stark, ii. p. 223.

Erythropygia paena Reich. iii. p. 772.

a. ♂. Molopo River, 3000 ft., 19th April. (No. 22, *R. B. W.*)

Iris dark brown; bill and feet black.

This is a fine male in freshly-moulted plumage, with the crown and nape grey; as the ends of the feathers become worn the dark bases become more or less visible, and the general colour of the crown becomes browner during the breeding-season, which is in January. In the present specimen the throat as well as the middle of the breast and belly are purer white than in birds in worn plumage.

This Ground-Robin was met with throughout the Kalahari where there was suitable ground. It seems to prefer stony barren soil and low thorn-scrub to the larger acacia-trees. It is usually to be seen skulking about at the bottoms of the bushes, but the male often sings a not unpleasant short song from the top of some bush or low tree.

SAXICOLA PILEATA LIVINGSTONII (Tristram).

Saxicola pileata livingstonii Stark, ii. p. 198.

Saxicola pileata Reich. iii. p. 718 [part.].

a. ♂. Okwa, 3000 ft., 6th June. (No. 517, *G. L.*)

b, c. ♂ ♀. Lehutitu, 3000 ft., 25th & 29th May. (Nos. 511, 514, *G. L.*)

Iris dark brown; bill and feet black.

This form is distinguished from typical *S. pileata* by its smaller size and shorter bill; also, the white band on the forehead is narrower, and the back is darker and of a more reddish-brown.

We found Livingstone's Wheatear throughout the Kalahari wherever open country, such as it loves, was met with. At every dry salt-pan, although surrounded by vast tracts of dense bush-country, a pair or two were always to be seen. This Wheatear can mimic the notes of other birds in a most remarkable manner.

CRATEROPUS BICOLOR Jard.

Crateropus bicolor Stark, ii. p. 59; Reich. iii. p. 667.

a. ♂. Lehutitu, 3000 ft., 30th May. (No. 515, *G. L.*)

Iris hazel; bill and feet black.

The Pied Babbler was not so plentiful in Ngamiland as Hartlaub's Babbler, and is far more numerous further south, especially along the Molopo River. The habits of both are much alike, but the Pied Babbler is far more inquisitive, and if a person sits down in the bush and remains perfectly motionless a party of these birds is almost certain to be attracted. At first they keep at some distance, hopping nervously round and chattering incessantly; but as they gain confidence they come nearer and nearer and become less noisy, till eventually several will take up positions within a few feet and remain almost silent, turning their heads from side to side as if trying to ascertain whether the curious animal looks equally curious viewed with each eye separately! The slightest movement sends them to a distance, chattering more noisily than ever.

CRATEROPUS HARTLAUBI Bocage.

Crateropus hartlaubi Stark, ii. p. 58; Reich. iii. p. 663.

a, b. ♂. Tsau, 2700 ft., 30th June. (Nos. 525, 526, *G. L.*)

Iris red; bill black; feet dark slate-grey.

Hartlaub's Babbler is a very common bird in Ngamiland. It generally frequents the rather dense belts of bush which separate the mopani forest from the marshes. It seems always to be moving about in parties of from five to a dozen individuals, which are very noisy when disturbed and rather inquisitive, but not to the same extent as *C. bicolor*.

PYCNONOTUS TRICOLOR NGAMII, subsp. n.

Adult female. Most nearly allied to *P. tricolor* (Hartl.), but larger and darker. The upper parts as well as the chest and upper breast are dark sooty brown, rather darker on the head, cheeks, and throat; the lower breast and belly pure white, and sharply defined from the dark upper breast; vent and under tail-coverts clear bright yellow. Iris dark brown, bill and feet black.

Total length 8·3 inches; wing 4·25; tail 3·9; tarsus 1·1.

Hab. Lake Ngami.

Type in the British Museum. ♀. No. 536. Lake Ngami, 2700 ft., 2. vii. 09. Hon. G. Legge Coll.

Two specimens, obtained by C. J. Andersson in Damaraland, and referred by Sharpe to *P. layardi*, are certainly referable to that species, and not to the bird from Lake Ngami [*cf.* Gurney, Anderss. Birds Damaral. p. 120, editorial note; Sharpe, Cat. Birds Brit. Mus. vi. p. 134, specs. *s* & *t*].

The Ngami Bulbul is a common bird throughout Bechuanaland, but is only found in the Kalahari in the neighbourhood of water, its presence being an almost infallible sign that water is at no great distance. In Ngamiland we noticed it was particularly fond of the soft berries of the pepper-tree.

PHYLLOSTROPHUS STREPITANS Reich.

Phyllostrophus strepitans Stark, ii. p. 72.

Phyllastrephus strepitans Reich. iii. p. 405.

Phyllastrephus capensis suahelicus Reich. iii. p. 405.

a. ♂. Tamalakan River, 3000 ft., 24th August. (No. 93. *R. B. W.*)

Iris hazel; bill dark horn-coloured; feet grey.

This form may be at once distinguished from *P. capensis* Swainson, from South Africa, by the much paler colour of the upper parts.

This Bristle-necked Bulbul was met with by the members of the Lake Ngami Expedition at the Tamalakan River, and appears to have a very wide range. It should be noted that it is this species and not *P. capensis* which occurs at Lake Ngami and also at Lake Nyasa. Examples of the so-called *P. c. suahelicus* appear to be indistinguishable from *P. strepitans*.

The only specimen of this Bulbul met with in Ngamiland was obtained in the mopani forest, north-east of the Lake.

BATIS PRIRIT (Vieill.).

Pachyprora pririt Stark, ii. p. 257.

Batis pririt Reich. ii. p. 486.

a–c. ♂ ♀. Molopo River, 3000 ft., 8th, 12th, and 25th April. (Nos. 2, 6, 33, *R. B. W.*)

Iris yellow; bill and feet black. Fresh-moulted examples have the crown and back greyer.

The Pririt Flycatcher is a common bird in the acacia-forest along the Molopo River; it appears to prefer rather arid forest to well-watered country, and we did not obtain it in Ngamiland.

PARISOMA SUBCÆRULEUM (Vieill.).

Parisoma subcæruleum Stark, ii. p. 75.

Parisoma subcæruleum cinerascens Reich. iii. p. 519.

a. ♀. Kakia, 3000 ft., 6th May. (No. 505, *G. L.*)

Iris pale lemon; bill black; feet slate-coloured.

Dr. Reichenow has separated specimens of *P. subcæruleum* from S.W. Africa, but an examination of a large series shews that the greyer back, &c., are characteristics of freshly moulted specimens all over the bird's range.

This Tit-Babbler was met with occasionally throughout the journey across the Kalahari. It does not appear to frequent the acacia-forest or larger trees, but prefers more open country where there are patches of dense low scrubby thorn-bush and stony ground. It is always to be seen in such country around the large flat salt-pans so numerous in the Kalahari. There is really nothing the least Tit-like in the habits or notes of this bird; indeed, it has quite a loud and pleasant song, and, unless its trivial name is given on account of its general appearance, it is difficult to see what affinity it can have to the Tits.

BRADYORNIS BENGUELLENSIS Sousa.

Bradyornis benguellensis Sousa, J. Ac. Lisb. 1886, p. 160; Sharpe, Ibis, 1904, p. 317.

Bradyornis infuscatus Stark, ii. p. 237 [part.].

Bradornis infuscatus Reich. ii. p. 434 [part.].

a. ♂. Lehutitu, 3000 ft., 25th May. (No. 512, *G. L.*)

Iris dark brown; bill and feet black.

B. benguellensis is a pale western form of *B. infuscatus* Smith, and was originally described from Benguela. The British Museum possesses typical examples from that locality which do not appear to differ in any degree from six examples procured in Damaraland by Andersson or from the specimen from the Kalahari in the present collection. Neither of the typical specimens from Benguela are fully adult, as may be seen by the *distinct pale margin* to the bastard primary-quill.

These Flycatchers were seen in most of the more open patches of country throughout the Kalahari. They are very shy birds and difficult to approach.

Dendropicus guineensis (Scop.).

Dendropicus cardinalis Stark & Sclater, iii. p. 135.

Dendropicos guineensis Reich. ii. p. 192.

a, b. ♂ ♀. Lake Ngami, 2700 ft., 28th June & 10th July. (Nos. 50, *R. B. W.*, 555, *G. L.*)

c. ♂. Molopo River, 3000 ft., 19th April. (No. 23, *R. B. W.*)

Iris dark claret or chocolate; bill dark grey; feet greenish-grey.

The Cardinal Woodpecker was met with in the Kalahari and Ngamiland wherever there was forest. It seems to prefer acacia-trees in rather dry districts to the more tropical country north of the lake.

Campothera bennetti (Smith).

Campothera bennetti Stark & Sclater, iii. p. 133.

Dendromus bennetti Reich. ii. p. 177.

a. ♂. Lehutitu, 3000 ft., 15th May. (No. 37, *R. B. W.*)

Iris crimson; bill black; feet greenish-grey.

This is a very fine adult male, with the under parts pale and the spots on the chest and breast much reduced in size. In this respect it resembles two male examples in the British Museum from Mashonaland (*Edward Clarke*) and also a specimen from the Makalaka Country. In Smith's type from Kurrichane the spots are much larger, a difference probably due to age.

This Woodpecker was seen occasionally throughout the acacia-forest in the Kalahari and also in the mopani forests of Ngamiland. I had a very remarkable experience with one of these birds, which I had wounded. It had its wing broken close to the body. When I went to pick it up, instead of its fluttering and jumping about as birds usually do in such a condition, I found it hopping about quietly on the ground pretending to feed and pick up insects. I stood quite still and watched it closely; it was not really feeding, and was only picking up little twigs and dropping them again and frequently taking swift glances up at me to see what I was doing. Presently it came on to my boot and then climbed up my leg on to my waistcoat, going round my leg just as if it had been a tree-trunk, and pretending to pick things off while constantly peeping up at my face with its bright eyes. I have not the least doubt that the bird was playing a deliberate and very plucky game of bluff. We know that in the animal kingdom a wounded or sickly member is frequently set upon and killed by its fellows, and this bird was obviously trying to disguise its crippled condition in the hope that I should not attempt to molest it. I have had two very similar experiences with Larks (*Mirafra*). I need hardly say I was quite upset at having to kill this bird.

INDICATOR INDICATOR (Gmel.).

Indicator sparmanni Stark & Sclater, iii. p. 146.

Indicator indicator Reich. ii. p. 104.

a. ♂. Mababe Flats, 3000 ft., 12th Aug. (No. 90, *R. B. W.*)

Iris brown ; bill pink ; feet dark grey.

The Honey-Guide was particularly plentiful in the mopani forest north-east of Lake Ngami. Old mopani trees afford numberless holes and cracks for bees' nests, which are very plentiful in this district, and this no doubt accounts for the numbers of Honey-Guides. In all my experiences of African travel I had never previously seen any *Indicator* lead a man to a bees' nest, but in Ngamiland I had the pleasure of following these wonderful little guides to some score of nests, from which we obtained excellent honey. Occasionally the nests were as much as half a mile from where the bird first attracted our attention. Sometimes when in camp, and often during the march, our attention would be attracted by a little bird apparently in a great state of excitement, chattering and vibrating its half-extended wings like a young bird about to be fed. No sooner do the natives hear this than the cry of "denōtse" is raised and a party with axe and bucket at once sets out to follow the bird. It is best for one or two only to follow the bird until the nest is found, and a man well versed in its ways seldom fails. As he follows it he whistles a peculiar note, and most of the Bechuanas use the same call. The bird is distinctly elusive and seldom lets its pursuer come within twenty yards of it before it darts off to another tree and there goes through the same performance of swearing and chattering. Some birds will fly into the actual tree in which the bees' nest is placed and perch for a moment close to the hole, chattering loudly, then, as the man approaches, fly off to some tree near at hand and remain silent and invisible. Others will only fly once or twice quickly into or through the boughs of the tree and then retire and remain silent. Some, again, will suddenly disappear, and leave the man to search the neighbourhood for a likely tree, generally with success. If he fails to find the nest and retires, the bird frequently appears again and leads him to the same spot. Upon one occasion I shot the bird after finding the nest, unknown to the natives of course, and no sooner did they strike the tree with an axe than the whole swarm came out and drove us all away! I have watched for the bird to come and eat up the spoils left for it, but was never rewarded with a view.

LYBIUS TORQUATUS (Dumont).

Lybius torquatus Stark & Sclater, iii. p. 157 ; Reich. ii. p. 125.

a–d. ♂ ♀. Lake Ngami, 2700 ft., 2nd & 6th July. (Nos. 532, 533, 545, 546, *G. L.*)

Iris hazel ; bill black ; feet black or dark grey.

The Black-collared Barbet is common in the more tropically wooded parts of Ngamiland. It has a remarkable loud flute-like note, repeated over and over again.

TRICHOLÆMA LEUCOMELAS (Bodd.).

Tricholæma leucomelas Stark & Sclater, iii. p. 160.

Tricholæma leucomelan Reich. ii. p. 134.

a. ♀. Ghanzi, 3000 ft., 16th June. (No. 520, *G. L.*)

Iris brown; bill and feet black.

TRACHYPHONUS NOBILIS, sp. n.

Adult male. Differs from *T. cafer* in having the bill much stouter and deeper at the base; the feathers on the lores and forehead black with dark crimson tips, instead of yellow with red tips; while the red margins to the yellow feathers on the sides of the head and throat, generally so marked in examples of *T. cafer*, are very narrow and faint. Iris, inner ring brown, outer ring crimson; bill yellow, horn-coloured at the tip; feet dull greyish-brown.

Wing 107 mm.; tail 89.

Hab. Lake Ngami, 2700 ft.

Type in the British Museum. ♂. No. 60, 12. vii. 09. R. B. Woosnam Coll.

This was the only specimen of this beautiful Barbet seen in Ngamiland. It was feeding upon the berries at the top of a tall tree on one of the islands in the Okavango marshes.

SCHIZORHIS CONCOLOR PALLIDICEPS (Neum.).

Corythaixoides concolor pallidiceps Neum. J. f. O. 1899, p. 66.

Chizærhis concolor Reich. ii. p. 34.

Schizorhis concolor Stark & Sclater, iii. p. 219.

a. ♂. Lake Ngami, 2700 ft., 8th July. (No. 551, *G. L.*)

Iris dark brown; bill and feet black.

This bird belongs to the rather paler-headed form found in Angola, &c., separated by Prof. Neumann under the above given name.

This Touraco is one of the commonest and most conspicuous birds in Ngamiland. It always appears to enjoy life thoroughly; its laughing note is constantly to be heard while it is feeding on the "mocochan" berries and apparently romping with its fellows. It becomes very tame in confinement, and I knew of one which would sit on its owner's shoulder and take food from his lips. It is a curious fact that its low and long-drawn note so exactly resembles that of a young Situtunga (*Tragelaphus spekei*) that it is almost impossible to tell them apart.

Coccystes hypopinarius Cabanis & Heine.

Coccystes jacobinus hypopinarius Reich. ii. p. 80.

Coccystes hypopinarius Stark & Sclater, iii. p. 197.

a. ♂. Molopo River, 3000 ft., 19th April. (No. 24, *R. B. W.*)

Iris dark brown; bill black; feet greenish-grey.

This Cuckoo was commonly met with on the Molopo River, occasionally in the Kalahari, and again in Ngamiland. It was always rather a shy bird and difficult to approach.

Centropus cupreicaudus Reichenow.

Centropus cupreicaudus Reich. ii. p. 64; Stark & Sclater, iii. p. 207.

a. ♂. Lake Ngami, 2700 ft., 10th July. (No. 557, *G. L.*)

Iris red; bill and feet black.

Lophoceros leucomelas (Licht.).

Lophoceros leucomelas Reich. ii. p. 260; Stark & Sclater, iii. p. 118.

a. ♂. Ghanzi, 3000 ft., 13th June. (No. 519, *G. L.*)

Iris yellow; bill orange; bare skin on the throat pinkish flesh-coloured; feet black.

This Hornbill was found plentifully on the Molopo River and in Ngamiland. It was occasionally seen in the Kalahari, but never at any great distance from water. The birds have a wonderfully buoyant flight: they will launch themselves from the top of a tree and glide for a long distance without moving their wings; when they sink too low they give a few slow flaps and then glide on again till they alight clumsily on another tree. There are often several of them together. They have a very curious but musical piping note, which they utter sitting bolt upright on a bough, with the neck fully extended, and the long bill pointed straight up to the sky. I have seen two calling simultaneously side by side and looking perfectly ridiculous.

UPUPA AFRICANA Bechst.

Upupa africana Reich. ii. p. 336; Stark & Sclater, iii. p. 10.

a. ♂. 50 miles south of Lake Ngami, 3000 ft., 20th June. (No. 47, *R. B. W.*)

Iris, bill, and feet dark brown.

This Hoopoe was seen several times in the heart of the Kalahari, in the most arid acacia-forest.

RHINOPOMASTUS CYANOMELAS (Vieill.).

Rhinopomastus cyanomelas Reich. ii. p. 346; Stark & Sclater, iii. p. 17.

a. ♀. Lehutitu, 3000 ft., 21st May. (No. 510, *G. L.*)

Iris dark brown; bill and feet black.

This Wood-Hoopoe was met with on the Molopo River, and sparingly in the Kalahari, but it was nowhere a common bird. A much larger species was seen once or twice in the mopani forest N.E. of Lake Ngami, but we failed to obtain a specimen.

MELITTOPHAGUS MERIDIONALIS Sharpe.

Melittophagus meridionalis Reich. ii. p. 307; Stark & Sclater, iii. p. 67.

a, b. ♂ ♀. Lake Ngami, 2700 ft., 1st and 9th July. (Nos. 529, 552, *G. L.*)

Iris dark red; bill black; feet dark grey.

This Little Bee-eater is very common in Ngamiland, and is usually to be seen perched on some reed or tall papyrus-stem overhanging the water. Generally several individuals sit close together, now and then darting off in pursuit of some passing insect.

DICROCERCUS HIRUNDINEUS (Licht.).

Dicrocercus hirundineus Reich. ii. p. 315; Stark & Sclater, iii. p. 65.

a. ♂. Molopo River, 3000 ft., 15th April. (No. 13, *R. B. W.*)

b. ♂. Tsau, 2800 ft., 22nd June. (No. 521, *G. L.*)

Iris crimson; bill black; feet dark brown.

Specimen *a* of the Swallow-tailed Bee-eater is in an interesting stage of plumage, attaining the yellow throat; the yellow feathers are taking the place of the pale emerald-green plumage which distinguishes the young bird.

PŒOCEPHALUS DAMARENSIS Neum.

Poicephalus meyeri damarensis Reich. ii. p. 13.

Pœocephalus damarensis Ogilvie-Grant, Trans. Zool. Soc. xix. p. 440 (1910).

Pœocephalus meyeri Stark & Sclater, iii. p. 228.

a. ♀. Lake Ngami, 2700 ft., 6th July. (No. 54, *R. B. W.*)

Iris brown; bill and feet grey.

This Parrot was quite a common bird in the more heavily-wooded parts of Ngamiland N. and N.E. of the Lake, and along the Botletle River.

SCOPS ERLANGERI Ogilvie-Grant.

Scops erlangeri Ogilvie-Grant, Ibis, 1906, p. 660.

a. ♂. Molopo River, 3000 ft., 8th April. (No. 4, *R. B. W.*)

Iris bright orange; bill and feet horn-coloured.

This Owl is very common in the kameel-thorn forest along the Molopo River, and also in Ngamiland, but I never met with it far from water. It is partially diurnal, and feeds largely on big orthoptera and coleoptera, as well as small birds and mammals. I had a tame specimen, which was sent to the Zoological Gardens; it was one of the most amusing and delightful pets I have ever had.

SCOPS CAPENSIS (Smith).

Pisorhina capensis Stark & Sclater, iii. p. 254; Reich. i. p. 666.

a. ♂. Lehutitu, 3000 ft., 15th May. (No. 36, *R. B. W.*)

Iris yellow; bill and feet dark grey.

This is a remarkably grey example, without any traces of rufous in the plumage, grey being the predominating colour of both the upper and under parts. In the British Museum there is a second and very similar example from Damaraland, procured by C. J. Andersson; both these birds no doubt represent extreme examples of the grey phase, while the bird from N. Uganda, described by Neumann as *Pisorhina capensis ugandæ,* is typical of the red phase.

This was the only specimen of the Cape Scops-Owl met with during the journey. It was found among dry acacia-forest in the Kalahari, and was quite invisible except when moving.

GLAUCIDIUM CAPENSE (Smith).

Glaucidium capense Stark & Sclater, iii. p. 259; Reich. i. p. 672.

a. ♂. Mababe Flats, 3000 ft., 8th August. (No. 81, *R. B. W.*)

Iris yellow; bill light horn-coloured; feet light brown.

A few of these Owls were seen in Ngamiland, but they are very shy and difficult to obtain. I have never been able to identify the note of either this species or of *Scops capensis.*

STRIX FLAMMEA Linn.

Strix flammea maculata Reich. i. p. 676.

Strix flammea Stark & Sclater, iii. p. 237.

a. ♂. Lake Ngami, 2700 ft., 11th July. (No. 59, *R. B. W.*)

Iris dark brown; bill white; feet brown.

I believe the Barn-Owl in South Africa breeds almost entirely in the nests of the "Hammer-Kop" (*Scopus umbretta*), and that these unhappy birds have to supply every pair of Barn-Owls in the district with a house before they can breed themselves.

ASTUR POLYZONOIDES (Smith).

Astur polyzonoides Stark & Sclater, iii. p. 358; Reich. i. p. 556.

a. ♂. Molopo River, 3000 ft., 8th April. (No. 1, *R. B. W.*)

Iris scarlet; bill black, base yellow; feet yellow.

MELIERAX GABAR (Daud.).

Melierax gabar Stark & Sclater, iii. p. 364.

Micronisus gabar Reich. i. p. 565.

a, b. ♂ ♀. Lake Ngami, 2700 ft., 6th & 7th July. (Nos. 53, *R. B. W.*; 547, *G. L.*)

Male. Iris brownish-red; bill black, cere red; feet red.

Female. Iris crimson; bill black; feet scarlet.

ANAS SPARSA (Smith).

Anas sparsa Reich. i. p. 115; Stark & Sclater, iv. p. 136.

a. ♂. Vryburg, 18th Feb. (*R. B. W.*)

Iris dark brown; bill light blue-grey with a black spot, as in the Yellow-bill Duck; feet yellowish-orange. Length in the flesh 23·1 inches; weight 2¼ lbs.

A single bird was shot in a reedy spruit near Vryburg. Among the myriads of Duck in Ngamiland, not a single specimen of either the Black Duck or Cape Shoveler was seen.

NYROCA ERYTHROPHTHALMA (Wied).

Nyroca capensis Reich. i. p. 108.

Nyroca erythrophthalma Stark & Sclater, iv. p. 147.

a, b. ♂ ad. et imm. Lake Ngami, 2700 ft., 25th June and 12th July. (*G. L.*)

Ad. Iris hazel; bill blue, nail black; feet slate-coloured.

Imm. Iris chestnut; bill dark slaty; feet grey.

Total length of adult in the flesh 18·5 inches.

BALEARICA REGULORUM (Bennett).

Balearica regulorum Reich. i. p. 265; Stark & Sclater, iv. p. 284.

a, b. ♂ (heads only). Mababe Flats, 3000 ft., 30th July. (*R. B. W.*)

Colour of the throat and behind the ear bright scarlet-orange.

This Crane is very common on these flats in parties consisting of from three to twenty birds. The specimens obtained were part of a flock of eleven.

CURSORIUS TEMMINCKI Swains.

Cursorius temmincki Reich. i. p. 155; Stark & Sclater, iv. p. 325.

a. Adult. Vryburg, 4000 ft., 10th April. (No. 98, *R. B. W.*)

Iris dark brown; bill blackish, lower mandible lighter; feet white.

A single specimen of Temminck's Courser was shot on the edge of a large dry dam. This is the only occasion upon which I met with this species in the bush-veldt of Bechuanaland.

ÆGIALITIS TRICOLLARIS (Vieill.).

Charadrius tricollaris Reich. i. p. 176.

Ægialitis tricollaris Stark & Sclater, iv. p. 367.

a. ♂. Okwa, 3000 ft., 6th June. (No. 46, *R. B. W.*)

Iris and bill dark brown; feet light brown.

VINAGO SCHALOWI (Reich.).

Vinago schalowi Reich. i. p. 399; Stark & Sclater, iv. p. 159.

a. ♂. Tsau, 2700 ft., 28th June. (No. 522, *G. L.*)

Iris dark brown; bill coral, tip red; feet coral.

This Pigeon is common in Ngamiland where there are large trees. During the winter it feeds largely on the berries of the "mocochan" tree. It has a very remarkable note, which is impossible to describe.

TURTUR DECIPIENS Finsch & Hartl.

Turtur decipiens Reich. i. p. 412.

Turtur ambiguus Reich. i. p. 416; Stark & Sclater, iv. p. 168.

a. ♀. Mababe Flats, 3000 ft., 14th August. (No. 91, *R. B. W.*)

Iris pale cream-coloured; bill black; feet pink.

The wing-measurement of this bird is 170 mm.

Chalcopelia afra (Linn.).

Chalcopelia afra Reich. i. p. 426; Stark & Sclater, iv. p. 180.

Chalcopelia chalcospilos volkmanni Reich. J. f. O. 1902, p. 134 (Damaraland).

a. ♀. Lake Ngami, 2700 ft., 6th July. (No. 51, *R. B. W.*)

Iris dark brown; bill black; feet dull purple.

This specimen has green metallic wing-spots, and belongs to the form *C. chalcospila* (Wagl.) as recognised by Sharpe and subsequently named *C. c. volkmanni* by Dr. Reichenow.

This little Dove was not met with until we reached Ngamiland, and there it was not at all common.

Francolinus sephæna (Smith).

Francolinus sephæna Reich. i. p. 195; Stark & Sclater, iv. p. 199.

a. ♀. Tamalakan River, 3000 ft., 23rd August. (No. 92, *R. B. W.*)

Iris dark brown; bill black; feet scarlet.

A few examples of this Francolin were met with in Ngamiland along the wooded banks of the rivers, but they were not nearly in such numbers as *F. adspersus* and *F. swainsoni.* They roost in trees, and have a very loud call or crow, most often heard in the early morning and at sunset.

Numida papillosa Reich.

Numida papillosa Reich. i. p. 441; Stark & Sclater, iv. p. 231.

a, b. ♂ ♀ (heads only). Molopo River, 3000 ft., 20th April. (*G. L.*)

Iris dark brown; bill black, tip horn-coloured; feet very dark grey.

Soft parts on head dark lead-coloured, becoming lighter on the throat and turning to bluish round the lower neck.

XXII.—*Contributions to the Ornithology of Egypt*[*].—No. III. *The Birds of the Wadi Natron.* By M. J. Nicoll, F.Z.S., M.B.O.U.

The Wadi Natron consists of a chain of salt lakes situated to the north-west of Cairo and about twenty miles from the Nile Valley. The Egyptian Salt and Soda Company have a factory at Bir Hodmer, the "capital" of the Wadi.

In March 1910, by kind permission of the Company I paid a visit to the Wadi Natron, where I stayed for nine days collecting birds. My special reasons for going there were :—

(1) To obtain specimens of the Crested Lark (*Galerida cristata caroli*), which was, until lately, believed to be peculiar to the Wadi Natron.

(2) As only two collections of birds had previously been made in this locality, *i. e.*, by Mr. W. L. S. Loat and the Hon. N. Charles Rothschild in 1903, the former of whom published a paper on his observations ('Ibis,' 1905, p. 453), I thought it probable that further work there might be productive.

(3) That, owing to the position of the Wadi, observations on the migration of birds there might be of importance.

As regards the last point Mr. Loat states that the Wadi Natron is out of the track of migrating birds ('Ibis,' 1905, p. 454), but as he was there at least a month too early for the beginning of the spring migration it is hardly surprising that he met with but few species. Altogether he enumerates about forty-five. Mr. Rothschild unfortunately did not publish any account of the birds which he collected there, but I know that he obtained examples of several species which Mr. Loat did not meet with.

During my visit in March 1910 the spring migration was just commencing, and subsequent researches have proved that the Wadi Natron is a veritable "Heligoland" as far as migration is concerned. During my first visit I fortunately obtained the valuable co-operation of Signor A. T. Balboni, the Secretary of the Wadi Natron Branch of the Salt and Soda Company—a keen zoologist and collector; and owing to his kind help, which I most gratefully acknowledge, I am now able to add about 120 species and subspecies of birds to Mr. Loat's list! In November 1911 I again visited the Wadi Natron, and spent six days there, during which time I walked from end to end of the Wadi and added several species to my former collection.

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[*] See 'Ibis,' 1909, pp. 285 and 623.

Apart from the Salt Lakes, which in themselves are only attractive to wading birds—Ducks and Flamingos—there are a number of fresh-water pools and springs, vast tracts of bulrushes, ("bourdy"), and a small experimental farm on which clover and various corn-crops are grown. A little plantation of eucalyptus trees make a further attraction for passing birds. Taken on the whole, however, the Wadi Natron does not look an attractive spot for migrants, and the following list of the birds which have been known to occur there is surprising, but there is no doubt that there is a great migration-route there from south to north in spring and *vice versa* in autumn.

My best thanks are due to Mr. Balboni for his most valuable help in obtaining and sending to me birds during the past two years. On many occasions consignments were sent to me by hand over the desert as far as Rhatalbe, on days when there was no train running on the light railway from the Wadi; and as Mr. Balboni is a good ornithologist and most careful collector all the birds sent by him were of the greatest interest to me, and without his help the present paper could never have been written.

To Mr. D. Patterson, the manager of the Wadi Natron factory, my best thanks are due for his many kindnesses to me during my two visits, and for allowing me not only to use the rest-house at Bir Hodmer, but for placing guides, trolleys, and horses at my disposal at all times.

Lastly, I would offer my best thanks to the Hon. Walter Rothschild and Dr. Ernst Hartert for their great kindness in permitting me to work out my collections at the Tring Museum. Only those who have had the good fortune to work at that magnificent institution will understand what a great help it has been to me in the preparation of the present paper.

Finally, I would mention that this paper is, I hope, but a first instalment of the avifauna of the Wadi Natron. It seems to me that the material already accumulated should be described without loss of time, seeing that it includes several new and many little-known facts relating to the birds of Egypt.

1. TURDUS MUSICUS Linn.

Turdus musicus Linn. Syst. Nat. xii. p. 292 (1766); Shelley, Birds of Egypt, p. 66.

I have a Song-Thush shot by Mr. Balboni on December 20th, 1910. During my visit in November 1911 I saw an example on two occasions.

Song-Thrushes from Egypt, where they are winter visitors, are nearer to British examples than to the typical Grey-backed continental form, but for the present I place them under the name given above.

2. TURDUS PILARIS Linn.

Turdus pilaris Shelley, p. 66.

A Fieldfare was shot by Mr. Balboni on December 20th, 1910, and was forwarded to me with the Song-Thrush mentioned above. This species seems to be a scarce winter visitor to Egypt, and its occurrence in the Wadi Natron, where there is little to attract Thrushes, is remarkable.

TURDUS MERULA SYRIACUS.

During my visit in March Mr. Balboni saw a Blackbird in the garden near the factory.

[All the Blackbirds in my collection from Giza are referable to *T. m. syriacus.*]

MONTICOLA SAXATILIS (Linn.).

Monticola saxatilis Shelley, p. 70.

This Rock-Thrush was first seen on March 21st, when I obtained a male; a day or two later several more appeared. The first arrivals were adult males. One adult male in perfect autumn plumage was obtained by Mr. Balboni on September 20th, 1910.

MONTICOLA SOLITARIUS TRANSCASPICUS Hartert.

? *Monticola cyanus* (Linn.), Shelley, p. 70.

First seen on March 19th, after which date I met with and obtained several specimens, all adult males, during my stay.

All my specimens from the Wadi are referable to Hartert's *M. s. transcaspicus*, which is paler than the typical form.

SAXICOLA ŒNANTHE ŒNANTHE (Linn.).

Saxicola œnanthe (Linn.), Shelley, p. 71.

The Wheatear was just arriving from the south when I reached the Wadi on March 18th. After a day or two numbers appeared and they were excessively numerous up to the time of my departure.

SAXICOLA ŒNANTHE ARGENTEA Lönnberg.

Saxicola œnanthe argentea Lönnberg, Arkiv for Zoologi, v. No. 9, p. 22 (1909).

Saxicola œnanthe leucorrhoa Nicoll, Ibis, 1909, p. 287.

On March 21st, 1910, I shot an adult male which appears to be of this form.

It is probable that this form frequently occurs amongst the numbers of Wheatears which pass through the Wadi during the spring migration. I have not yet found *S. œ. rostrata* in that locality, but it probably occurs there, as I have three adult males from Giza.

The three forms of *Saxicola œnanthe* which occur in Egypt may be distinguished as follows:—

S. œ. œnanthe.—Adult male. Wing less than 100 mm.

S. œ. argentea.—Adult male. Wing 100 mm. or more; bill same size as in *S. œ. œnanthe.*

S. œ. rostrata.—Adult male. Wing about 100 mm.; bill long and slender, about 20 mm.

SAXICOLA ISABELLINA Rüppell.

Saxicola saltatrix Ménétries, Shelley, p. 72; Loat, Ibis, p. 455 (1905).

I saw a few Isabelline Wheatears during my visit in March 1910, and again in November 1911.

SAXICOLA HISPANICA XANTHOMELÆNA Hempr. & Ehr.

Saxicola xanthomelæna Hemprich & Ehrenberg, Symb. Phys., Aves, Fol. C. aa. No. 6 (1833).

Saxicola amphileuca Hempr. & Ehrenb., Shelley, p. 72.

Saxicola eurymelæna Hempr. & Ehrenb., Shelley, p. 73.

Dr. Hartert has recently called attention to the fact that the Black-throated and Black-eared Chats are of one and the same species, of both of which there is a western and an eastern form, and I am thoroughly in agreement with him.

Hemprich and Ehrenberg's type belonged to the Black-throated variety.

I obtained examples of both varieties during my stay in the Wadi Natron. They arrived in great numbers two days after I reached the Wadi. The black-throated form slightly outnumbered the other. I have no autumn records at present of this Chat in the Wadi.

SAXICOLA DESERTI HOMOCHROA (Tristr.).

Œnanthe deserti homochroa Rothschild & Hartert, Nov. Zool. xviii. p. 515.

Saxicola deserti Rüppell, Shelley, p. 74; Loat, Ibis, 1905, p. 455.

I believe this Chat to be resident in the Wadi Natron. Examples were obtained during my visit, and specimens received from Mr. Balboni during the summer of 1910 had evidently been breeding.

All my specimens belong to this form, which is quite separable from *S. d. amphileuca*, which occurs in "Nubia."

PRATINCOLA RUBETRA (Linn.).

Pratincola rubetra Shelley, p. 81.

I received from Mr. Balboni a male Whinchat shot on April 28th, and another shot on May 15th, 1910, which I take to be a female. The latter was badly damaged by shot and has a curious bleached appearance, which may be due to a somewhat long stay in the Wadi. It is interesting to note that the salt desert of the Wadi Natron appears to cause bleaching and abrasion very quickly. I have specimens of Crested Larks from there in which some of the feathers are bleached almost white, and some specimens of *Saxicola deserti* have the tips of their primaries worn completely off.

PRATINCOLA TORQUATA RUBICOLA.

Pratincola rubicola (Linn.), Shelley, p. 81; Loat, Ibis, 1905, p. 455.

During my visit in March 1910 a few Stonechats were seen. Mr. Balboni forwarded a pair shot on October 29th, 1910.

In November 1911 I found the Stonechat to be fairly numerous.

PHŒNICURUS PHŒNICURUS (Linn.).

Ruticilla phœnicura Shelley, p. 82.

Ruticilla phœnicurus Loat, Ibis, 1905, p. 455.

Mr. Loat appears to have met with the Common Redstart as early as January 21st. This is quite an exceptionally early date for this species in Egypt. The first I saw in the Wadi Natron was on March 20th, when a single adult male was shot. A few days later several others were met with, evidently new arrivals and all adult males. Mr. Balboni sent me two shot on April 13th, 1910.

PHŒNICURUS OCHRURUS GIBRALTARIENSIS.

Motacilla gibraltarensis Gmelin, Syst. Nat. i. 2, p. 987 (1789).

Phœnicurus ochrurus gibraltariensis Hartert, Vög. d. pal. Fauna, vol. i. p. 720.

Ruticilla titys (Scop.), Shelley, p. 83.

A single female or immature male was observed on March 18th, and I subsequently saw the same bird or another on several occasions during my stay. In November 1911 I found Black Redstarts in some numbers and obtained a young bird. One adult was seen but not procured.

Mr. Loat did not meet with the Black Redstart.

LUSCINIA SUECICA SUECICA.

Cyanecula suecica Shelley, p. 85; Loat, Ibis, 1905, p. 455.

The Red-spotted Blue-throat was not actually obtained in the Wadi during my visit, nor have I yet examined a specimen from there, although I am certain that I correctly identified several examples amongst the numbers of Blue-throats which frequented the fresh-water springs near the Salt Lakes. During my stay I shot but two Blue-throats, one which I took to be of this race and one of the white-spotted form. I now find that the former belongs to the subspecies next to be mentioned, i. e. *L. s. volgæ.*

In November 1911 all the Blue-throats met with were immature examples, and therefore impossible to assign to any race.

LUSCINIA SUECICA VOLGÆ (Kleinschm.).

Erithacus volgæ Kleinschmidt, Falco, iii. No. 2, p. 47 (1907).

Luscinia suecica volgæ (Kleinschm.), Hartert, Vög. d. pal. F. vol. i. p. 749.

I shot an adult male on March 22nd, 1910, which from the bleached condition of its primaries—the outer webs of which are nearly white—had evidently wintered, or at least spent some time in the Wadi.

The subspecies differs from the Red-spotted Blue-throat by having a considerable amount of white on the breast-spot; in some the spot is *almost* entirely white.

LUSCINIA SUECICA CYANECULA (Wolf).

On March 20th, 1910, I shot an adult male White-spotted Blue-throat near one of the fresh-water pools.

LUSCINIA MEGARHYNCHOS MEGARHYNCHOS Brehm.

Luscinia megarhynchos megarhynchos Hartert, Vög. d. pal. F. vol. i. p. 733.

Philomela luscinia Shelley, p. 88.

The Nightingale was first seen by me on March 21st, 1910, and on every subsequent day during my visit. On

April 28th, 1910, Mr. Balboni shot a female which he forwarded to me.

All the examples we met with were perfectly silent.

SYLVIA COMMUNIS COMMUNIS Lath.

Sylvia communis communis Lath., Hartert, V. d. pal. F. vol. i. p. 586.

Sylvia cinerea Bechst., Shelley, p. 111.

On March 21st, 1910, I shot a female Whitethroat in some scrub in the desert close to the Wadi Natron.

SYLVIA CURRUCA CURRUCA (Linn.).

Sylvia curruca Shelley, p. 110.

The Lesser Whitethroat was frequently met with during my visit in March 1910.

SYLVIA CANTILLANS ALBISTRIATA (Brehm).

Curruca albistriata Brehm, Vogelfang, p. 229 (1855—Ägypten).

This form of the Subalpine Warbler was first described by Brehm in 1855 from an Egyptian specimen. I have compared the type with specimens collected by me in Lower Egypt and find it to be a perfectly good form*. During my visit in March 1910 this handsome little Warbler was very common wherever there was any cover. I obtained two pairs. The fully adult female has the throat and upper breast tinged with vinous; younger females have these parts buffy white.

Although it is a common visitor to Egypt during the spring migration, I know of no instance of its nesting there.

SYLVIA RUEPPELLI Temm.

Sylvia rueppellii Temm., Shelley, p. 106.

Sylvia ruppeli Temm., Hartert, vol. i. p. 592.

First seen on March 21st, 1910, while a few were seen later and a female obtained during my visit. I have an adult male collected by Mr. Balboni, April 28th, 1910.

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* All Egyptian specimens which I have so far examined belong to this form.

PHYLLOSCOPUS COLLYBITA COLLYBITA (Vieill.).

Phyllopneuste rufa (Gm.), Shelley, p. 101.

Phylloscopus rufus (Gm.), Loat, Ibis, 1905, p. 456.

The Western or typical Chiffchaff was abundant during my visit in March. Amongst the numbers seen I believe that I also saw the Eastern *P. c. abietina,* but as no specimens were obtained I cannot say for certain.

I might here mention that amongst the vast numbers of Chiffchaffs which frequent Egypt during the winter months there are many which have a most peculiar call-note—a shrill chirp—totally unlike the call-note of the typical form. I now have a number of specimens of these birds, which differ from the typical *P. collybita* in being less greenish above and usually much whiter below, and although they are of small size I believe them to be referable to the Eastern *P. c. abietina.*

In his most valuable work—to which frequent reference is made in this paper, and to which I am greatly indebted—Dr. Hartert gives the measurements of the Eastern form as larger than those of the typical Chiffchaff. It must be borne in mind, however, that Chiffchaffs differ very considerably in size individually.

[PHYLLOSCOPUS BONELLII (Vieill.).

Phyllopneuste bonelli Shelley, p. 101.

I obtained no specimens of Bonelli's Warbler in the Wadi Natron although one or two examples were seen, therefore I cannot say which subspecies occurs there. *P. b. orientalis* (Brehm) is the common form occurring in Egypt, though I have one specimen of the typical form obtained by Mr. J. L. Bonhote in the Giza Province. I hope to get specimens of this Warbler from the Wadi Natron later.]

PHYLLOSCOPUS SIBILATRIX SIBILATRIX.

Phylloscopus sibilatrix (Bechst.), Shelley, p. 101.

On April 28th, 1910, Mr. Balboni shot a female Wood-Wren, which he kindly forwarded to me. This example is one of the very few specimens I know of this, the typical form from Egypt. *P. s. erlangeri* Hart., is the commoner subspecies here, and is easily separable from the typical form by its more brilliant coloration.

Aëdon galactodes galactodes (Temm.).

Aëdon galactodes (Temm.), Shelley, p. 85.

The Rufous Warbler is not uncommon in the Wadi Natron during the summer. I was too early for this species during my visit, but Mr. Balboni has sent me specimens and eggs.

Acrocephalus streperus streperus (Vieill.).

Calamoherpe arundinacea Shelley, p. 94.

I first met with the Reed-Warbler on March 19th, 1910, in some bulrushes near one of the Salt Lakes, when I obtained two males, while during the next few days I saw many others.

Compared with British examples, specimens from Egypt seem to be much less rufous in coloration, though they are not nearly grey enough for *A. s. macronyx*. At present I must unite them with the typical form, but I think that subsequent researches may shew that there is at least another geographical race of this species.

Acrocephalus stentoreus stentoreus (Hempr. & Ehrenb.).

Acrocephalus stentoreus (H. & E.), Shelley, p. 95; Loat, Ibis, 1905, p. 456.

The Egyptian and Palestine form of the Clamorous Great Reed-Warbler appears to be resident in the Wadi Natron. I saw several during my visit in March.

Loat obtained it in February, and Mr. Balboni has sent me a nearly full-grown young bird obtained on June 8th, 1910.

In November 1911 I found many examples of this species.

Acrocephalus schœnobænus (Linn.).

Calamodyta schœnobænus Shelley, p. 91; Loat, Ibis, 1905, p. 456.

First met with on March 19th, after which date it became fairly abundant in the bulrushes round the Salt Lakes up to the time of my departure.

Locustella luscinioides luscinioides (Savi).

Pseudoluscinia luscinioides (Savi), Shelley, p. 89; Loat, Ibis, 1905, p. 455.

On March 20th, 1910, I found several Savi's Warblers amongst some dried bulrushes close to a fresh-water spring, and on every subsequent day during my stay I met with this bird in similar situations.

Savi's Warbler is one of the most skulking birds I know and I found it exceedingly difficult to shoot. I obtained most of my specimens by walking through the bulrushes and shooting the birds as they rose almost at my feet.

On March 23rd I shot a single specimen amongst some dried reeds on the edge of a Salt Lake. Undoubtedly it was a fresh arrival—mere skin and bone—whereas the others obtained were very fat. When on the ground Savi's Warbler did not "hop" but "waddled" along like a parrot!

It is interesting to note that on the same day, *i.e.* March 23rd, when I shot the very thin example of Savi's Warbler, a strong gale had been blowing for thirty-six hours; and on the 23rd, Yellow Wagtails—which had increased in numbers—were very thin and half-starved. Swallows (*Hirundo rustica*) were so hungry that they fluttered close round my feet as I walked, trying to catch the insects disturbed by my passage. So fearless were these birds and so close did they come that I had to keep stopping in order to avoid kicking them.

On these two days most of the insectivorous birds were taking shelter in the cultivated land, where also house-flies had retired in vast numbers, and amongst the small Eucalyptus trees I found both birds and flies swarming. The latter made collecting almost impossible, as they settled on my face in clouds. The Swallows and Wagtails had evidently not discovered this abundant source of food supply, as all of them were searching for food on the open desert, which had been swept clear of insects by the gale.

PRINIA GRACILIS GRACILIS (Licht.).

Drymœca gracilis Shelley, p. 98; Loat, Ibis, 1905, p. 456.

Prinia gracilis gracilis (Licht.), Hartert, Vög. d. pal. F. vol. i. p. 608.

This pale subspecies of the "Graceful Wren-Warbler" is resident in the Wadi Natron, and I have a number of its skins as well as eggs.

It may not be out of place to offer here a few remarks on the geographical distribution of the two forms of *Prinia* which occur in Egypt.

The typical form, *P. g. gracilis*, was first described from Nubia (Lichtenstein, Verz. Doubl., Berlin, p. 34 (1823)).

Shelley, in his 'Birds of Egypt,' called attention to the difference between examples of "*Drymœca*" from Lower and Upper Egypt; subsequently Dr. Reichenow described the form inhabiting the Nile Delta as *P. g. deltæ* (J. f. O. 1904, p. 307). Lastly, in his book on Palæarctic Birds, Dr. Hartert mentions that the typical form occurs in the Wadi Natron, which he wrongly states to be south of Cairo. Mr. Loat also mentions that his specimens from the Wadi Natron belong to the pale form. I am now able to say from my own observations that the distribution of the two forms is as follows:—*P. g. deltæ* ranges from the north of the Nile Delta, Damietta, and Mariotis on the west, to Suez on the east; while *P. g. gracilis* is found as far north as the Wadi Natron and Fayoum, both of which places are oases in the Western desert (the former being *north* of Cairo); but never, so far as I am aware, is it to be met with in the Nile *Valley*, north of Luxor, the dark alluvial soil apparently being inhabited by the dark *Prinia g. deltæ* only.

MOTACILLA ALBA ALBA Linn.

Motacilla alba Shelley, p. 126; Loat, Ibis, 1905, p. 457.

The White Wagtail was abundant during my visit in March, and is doubtless a winter visitant there as elsewhere in Egypt. It was very abundant in November 1911.

Motacilla flava flava Linn.

Motacilla flava Shelley, p. 128.

? *Budytes flava* (Linn.), Loat, Ibis, 1905, p. 457.

My visit in March coincided with the northern migration of "Yellow" Wagtails, and amongst the mixed flocks containing examples of four different subspecies I saw several individuals of the typical form, one of which, an adult male, was obtained.

I have little doubt that the bird which Mr. Loat assigns to this race was not the typical *M. f. flava*, but the resident Nile-Valley form, *M. f. pygmæa*. I have not seen the examples which he obtained, but his careful description and measurements of his specimens leave no room for doubt to which form they should be assigned. Moreover, February 10th is far too early for any migratory movement of Yellow Wagtails in Lower Egypt.

In November 1911 I saw a few immature examples of this form in the cultivated portion of the Wadi.

Motacilla flava dombrowskyii (Tschusi).

Budytes flavus dombrowskyii Tschusi zu Schmidhoffen, Orn. Jahrb. xiv. p. 161 (1903, Roumania).

Motacilla flava dombrowskii (Tschusi), Hartert, Vög. d. pal. Fauna, vol. i. p. 289.

Although this form has not been previously recorded from Egypt, it has for some time been known to me as a spring visitor on migration. In March 1909 Mr. J. L. Bonhote and I obtained specimens in the Fayoum.

On March 21st and 23rd I shot two adult males in the Wadi Natron from amongst mixed flocks of *M. f. flava* and *M. f. melanocephala*. This form differs from *M. f. flava* in having a dark slate-blue crown and almost black ear-coverts; the superciliary stripe being, as in the typical form, pure white.

Motacilla flava pygmæa (Brehm).

Budytes pygmæus A. E. Brehm, J. f. O. 1851, p. 74.

During my visit in November 1911 I saw an adult male of this Wagtail at close quarters, but was unable to obtain it owing to its being in the midst of an impenetrable swamp.

That this form should occur in the Wadi Natron is not surprising as it is common in the Delta and in the Fayoum. I have obtained a specimen at Luxor. It is easily recognisable at a distance by its small size and dark coloration.

MOTACILLA FLAVA MELANOGRISEA (Hom.).

Budytes melanogriseus Homeyer, J. f. O. 1878, p. 128.

Motacilla flava melanogriseus (Hom.), Hartert, V. d. pal. F. vol. i. p. 296.

On March 24th, 1910, I shot a single adult male of this form in the Wadi.

M. f. melanogrisea is most nearly allied to *M. f. melanocephala*, from which it differs in the following particulars:—Crown *dull* black; nape greyish black; chin and upper throat whitish; a white line from the gape along the sides of the head below the ear-coverts. The under parts are pale sulphur-yellow. Measurements smaller than those of *M. f. melanocephala*.

MOTACILLA FLAVA MELANOCEPHALA Licht.

Motacilla melanocephala Licht., Shelley, p. 130.

The Black-headed Wagtail was the most numerous of the Yellow Wagtails during my visit. They passed in streams daily, all going northwards, and some specimens were obtained. Of all the "Yellow" Wagtails the present form is perhaps the most well marked; it is easily recognisable at some distance. The call-notes of this and all allied forms are similar.

ANTHUS PRATENSIS (Linn.).

Anthus pratensis Shelley, p. 131.

During my visit in March a few Meadow-Pipits were seen daily. In November 1911 this species was not uncommon.

ANTHUS CERVINUS (Pall.).

Anthus cervinus Shelley, p. 131; Loat, Ibis, 1905, p. 457.

Red-throated Pipits were fairly abundant during my stay in the Wadi. They were all in full moult in March. In November 1911 I found this species in swarms in the cultivated parts and in the fresh-water swamps.

ANTHUS TRIVIALIS TRIVIALIS (Linn.).

Anthus trivialis Shelley, p. 130.

Numbers of Tree-Pipits were seen in March consorting with Cretzschmar's and Ortolan Buntings in a small patch of clover, and specimens were obtained. On April 13th, 1910, Mr. Balboni obtained an example.

The fact of the species being found in company with Ortolans is most noteworthy, as Gätke has laid special stress on the occurrence of these two birds in Heligoland at the same time.

ANTHUS CAMPESTRIS (Linn.).

Anthus campestris Shelley, p. 134.

Mr. Loat did not meet with the Tawny Pipit during his stay in the Wadi Natron.

I found it exceedingly abundant in March, and from the behaviour of some of the birds seen I believe that it may possibly nest there sometimes.

ANTHUS SPINOLETTA COUTELLII.

Anthus spinolettus Shelley, p. 132.

This form of the Water-Pipit was not met with by Mr. Loat during his visit. I found it fairly abundant in March, by which time the summer plumage was being assumed.

In November I obtained several specimens.

ORIOLUS ORIOLUS (Linn.).

Oriolus galbula (Linn.), Shelley, p. 156.

The occurrence of the Golden Oriole in the Wadi Natron is remarkable, as there is little or nothing for it to feed on there; yet I have received no less than six examples collected by Mr. Balboni.

A female (? adult) shot May 5th, 1910, has a jet-black feather in the centre of the breast.

All these examples were very thin.

LANIUS SENATOR SENATOR Linn.

? *Lanius auriculatus* Shelley, p. 117.

Lanius senator senator Linn., Hartert, V. d. pal. F. vol. i. p. 434.

I have a single male of the typical Woodchat Shrike from the Wadi Natron, shot by myself on March 19th, 1910. In this specimen the central pair of rectrices are *dark brown to their roots.*

LANIUS SENATOR NILOTICUS (Bp.).

Lanius senator niloticus (Bp.), Hartert, Vög. d. pal. F. vol. i. p. 436.

Lanius pomeranus niloticus (Bp.), Nicoll, Ibis, 1909, p. 472.

During my visit in March 1910 Woodchats were quite numerous, and I obtained five examples of this geographical race.

This Eastern form differs from typical *L. s. senator* in having the bases of the central pair of tail-feathers *white.* The amount of white is somewhat variable. One example has 3 cm. from the base of the tail white. In others there is less; but as the typical form has the central pair of rectrices *darker to their bases*, I refer all examples shewing the least traces of white on this part to the Eastern form.

I do not vouch for the validity of this form as a *good* subspecies, as I have not personally examined breeding examples of *L. s. niloticus*; but all the European breeding birds which I have seen have the central tail-feathers dark to the very base. In Egypt, as stated above, one meets with examples with a little white only on these parts; but as both extremes occur on migration it is quite natural to expect intermediates. Such individuals in no way disprove the validity of the two subspecies, and therefore, as previously stated, I consider that all examples shewing any amount of white on the bases of the central pair of rectrices should be assigned to the Eastern form for the present, at all events.

LANIUS COLLURIO Linn.

Lanius collurio Shelley, p. 117.

On August 15th, 1910, Mr. Balboni obtained an adult male Red-backed Shrike, and three days later an adult female; both of these birds were just beginning to moult.

Up to the present time I have no records of the occurrence of the Red-backed Shrike in Egypt in spring, although it is a regular visitor, in large numbers, during the autumn migration.

MUSCICAPA GRISOLA.

Muscicapa grisola Shelley, p. 118.

Three Spotted Flycatchers were collected by Mr. Balboni, one on April 28th, one on May 5th, and one on May 7th, 1910.

MUSCICAPA ATRICAPILLA SEMITORQUATA Homeyer.

Muscicapa collaris Nicoll, Bull. B. O. C. xxiii. p. 93.

Muscicapa semitorquata Nicoll, Bull. B. O. C. xxv. p. 28; id. Ibis, 1909, pp. 473, 714.

An adult male of the Half-collared Flycatcher was obtained by Mr. Balboni on April 13th, 1910, and forwarded to me.

The occurrence of this subspecies in the Wadi Natron is of exceptional interest, as during April 1910 this race was frequently observed at Giza, where the first Egyptian example recorded was obtained in April, 1909. It is highly probable that owing to its confusion with the Pied Flycatcher (*M. a. atricapilla*) this interesting form may have been previously overlooked in Egypt. It only differs from the Pied Flycatcher in having the sides of the neck white, whereas in the typical form the sides of the neck are black.

The Half-collared Flycatcher is a subspecies of *M. a. atricapilla*, and has the outer webs of the three outer pairs of rectrices white, whereas in *M. collaris* the white is restricted to the outer pair *only* and is sometimes even entirely absent.

HIRUNDO RUSTICA RUSTICA Linn.

Hirundo rustica Shelley, p. 120; Loat, Ibis, 1905, p. 457.

The Swallow is probably a regular visitor during migration.

I have a male shot by Mr. Balboni on March 23rd, 1910, while another was shot on May 11th, but was too much damaged for preservation.

Up to the present time I have no specimens of *H. r. savignii* from the Wadi Natron.

CHELIDON URBICA URBICA (Linn.).

Chelidon urbica Shelley, p. 125.

CHELIDON URBICA MERIDIONALIS Hartert, Vög. d. pal. F. vol. i. p. 809.

I have a pair of House-Martins from the Wadi Natron. One female was shot by myself on March 25th, 1910, and one male was obtained by Mr. Balboni, April 13th, 1910.

Both these examples, as well as another pair which I have from the Giza Province, appear from their wing measurements to be nearest to this form.

RIPARIA RIPARIA (Linn.).

The European Sand-Martin passes through the Wadi Natron during the spring migration in large numbers. I have no autumn records of this bird.

During my visit in March 1909 I believe I saw examples of Shelley's Sand-Martin, *Riparia r. littoralis*, which is the breeding Sand-Martin of Egypt; but as no examples have been obtained I hesitate to include it under a separate heading.

PASSER HISPANIOLENSIS HISPANIOLENSIS (Temm.).

Passer salicicola Shelley, p. 149.

Passer hispaniolensis hispaniolensis (Temm.), Hartert Vög. d. pal. F. vol. i. p. 156.

During my visit in March I saw a pair of Spanish Sparrows and subsequently Mr. Balboni sent me several specimens, a pair obtained on April 19th, 1910, being in breeding plumage.

I have at present no positive records of the breeding of this species in Egypt, though examples obtained in April, in the Delta, have the appearance of being about to nest.

In November 1911 Spanish Sparrows were abundant in the Wadi and several examples were obtained. They frequented the cultivated land and were in company with Linnets.

So far as I can at present ascertain no form of *Passer domesticus* occurs in the Wadi Natron.

FRINGILLA CŒLEBS Linn.

Fringilla cœlebs Linn., Shelley, p. 151.

During my stay in November 1911 I saw several Chaffinches, one of which was obtained. All those seen were females.

SERINUS CANARIUS SERINUS.

Serinus hortulanus Shelley, p. 154.

Serinus canarius serinus Hartert, Vög. d. pal. Fauna, vol. i. p. 83.

On November 9th, 1911, Mr. Balboni shot a female Serin in his garden, and during the same month I saw several examples, but no more specimens were obtained.

LINOTA CANNABINA MEDITERRANEA.

Linota cannabina Shelley, p. 154.

In March 1910 I saw a Linnet, but no specimen was obtained during my stay in November 1911. Linnets were abundant in the cultivated ground and several examples were procured, all of which are referable to this form, as are all others which I have so far examined from Egpyt.

Mr. Balboni tells me that he has once seen a Greenfinch and once a Goldfinch in the Wadi, but so far has been unable to obtain specimens.

EMBERIZA CALANDRA CALANDRA Linn.

Emberiza miliaria (auctorum) Shelley, p. 144.

On March 15th, 1910, I saw a Corn Bunting in the Wadi Natron but was unable to obtain it. In November 1911 this Bunting was remarkably numerous and a number of specimens were obtained. They were apparently new arrivals, as all those shot were in poor condition. On one occasion I caught one of these Buntings alive by driving it into a native house.

Egyptian examples of Corn Buntings are much paler and greyer than British specimens.

EMBERIZA CÆSIA Cretzschmar.

Emberiza cæsia Shelley, p. 146.

This Bunting was exceedingly common during my visit in March 1910. All those met with were consorting with Ortolans and Tree-Pipits in a small patch of cultivation—wheat and clover: so closely were they congregated that on several occasions I obtained two or three examples at a shot. The call-note of Cretzschmar's Bunting is a very soft chirp, and owing to its unobtrusive habits it is quite easy to pass over a large flock when among standing corn or clover.

EMBERIZA HORTULANA Linn.

Emberiza hortulana Shelley, p. 145.

Ortolans were not uncommon during my stay in March, and were always found feeding together with Cretzschmar's Buntings and Tree-Pipits in the clover and wheat patches.

PYRRHULAUDA MELANAUCHEN (Cab.).

For this interesting addition to the Avifauna of Egypt I am indebted to Mr. Balboni, who forwarded to me, in the flesh, a perfect male example, which he had shot in the cultivated land on September 10th, 1911. The occurrence of a Finch-Lark in the Wadi Natron is surprising, but the specimen shews absolutely no signs of having been in captivity, and from the entire absence of fat on the body I conclude that it had just arrived in the Wadi after a long journey.

In addition I have had several other equally surprising visitors from this locality, *i. e.*, the Fieldfare and Golden Oriole referred to above, and the Oyster-catcher, which I shall mention later.

GALERIDA CRISTATA CAROLI Hartert.

Galerida cristata Loat, Ibis, 1905, p. 457.

Galerida cristata caroli Hartert, Vög. d. pal. Fauna, vol. i. p. 234.

This—the most sandy-coloured Crested Lark yet known from Egypt—was first described by Hartert from specimens collected by the Hon. N. C. Rothschild in the Wadi Natron.

Loat called attention to the pale coloration of the examples he obtained in the Wadi.

During my visit in March 1910 a series of eleven examples were obtained, and I have little doubt that they were just about to nest. At that time all those met with were inhabiting the salt-encrusted desert near the edges of the lakes and were very shy and difficult of approach. In November 1911, when I obtained more specimens, they were found for the most part either near the factory or close to the native houses, and were much more easily approached than in spring.

Galerida c. caroli is not confined to the Wadi Natron but inhabits the shores of the lakes in the Northern Delta, extending westward at least as far as Dabaa, whence I have recently received specimens collected by T. W. Russell Bey, of the Alexandria Police. Dabaa is 160 miles west of Alexandria, and how much farther this form extends in that direction it is impossible to say at present.

Freshly moulted examples of this Lark are greyer above and more rufescent beneath than they become later, and birds shot in early summer have a decidedly bleached appearance, some of the feathers being nearly white. This bleaching is caused, no doubt, by the salt ground which they frequent, and which acts in a most marked manner on some of the other Passerine birds which are resident, or which make a prolonged stay, in the Wadi.

LULLULA ARBOREA (Linn.).

Alauda arborea Linn., Shelley, p. 139.

On November 24th, 1911, Mr. Balboni and I each obtained a specimen of the Woodlark from a piece of ploughed ground near the factory. No others were seen.

ALAUDA ARVENSIS CINEREA.

Alauda arvensis Shelley, p. 139.

This Grey Skylark was not uncommon during my visit in November 1911, and was found together with the following form in large mixed flocks. I saw no Skylarks in March 1910, and Mr. Balboni tells me that he had not met with this Lark before.

ALAUDA ARVENSIS CANTARELLA Bp.

Alauda arvensis Shelley, p. 139.

Common in November 1911, and several specimens were obtained.

CALANDRELLA BRACHYDACTYLA BRACHYDACTYLA.

Calandrella brachydactyla (Leisler), Shelley, p. 141.

Two forms of Short-toed Lark occur in the Wadi Natron: the typical sandy-coloured rufous-headed bird, and the greyer form which lacks the rufous crown and has richer marking in the upper parts; the latter I refer to the form next to be mentioned.

During my first visit Short-toed Larks were extremely abundant in the small patches of cultivated land. Most of these appeared to belong to the darker form *C. b. longipennis.*

On May 28th, 1910, Mr. Balboni shot and forwarded to me a fine adult female with a very rufous crown to the head, in fact a typical *C. b. brachydactyla.* On dissection I found a large incubation patch, so it is evident that the bird had been nesting. This is the only instance that has come under my personal notice of the Short-toed Lark nesting in Egypt, but the bird may be a regular breeding species in this country.

CALANDRELLA BRACHYDACTYLA LONGIPENNIS (Eversmann).

Calandrella brachydactyla longipennis (Eversm.), Hartert, Vög. d. pal. F. vol. i. p. 216.

In March 1910 Short-toed Larks were seen daily in immense flocks on the cultivated ground. Owing to the little time at my disposal and the amount of other birds which at the time were of more pressing interest, I did not pay as much attention to these Larks as I might otherwise have done. I obtained a single specimen which is referable to this form. During my stay in November 1911 I only met with two Short-toed Larks, both of which were obtained and were found to belong to this dark grey form.

OTOCORYS ALPESTRIS BILOPHA (Temm.).

Eremophila alpestris bilopha (Temm.), Hartert, Vög. d. pal. F. vol. i. p. 257.

This Horned Lark was not included by Shelley in his 'Birds of Egypt.' Apparently the Hon. N. Charles Rothschild was the first to collect specimens in Egypt, in the Wadi Natron, where the bird is not uncommon and is resident. During my stay in March I did not meet with the Horned Lark, although it was one of the birds I was especially on the look out for. Soon after my return, however, Mr. Balboni sent me several examples, one of which, a female slightly shot in the wing, is now living in company with others since purchased alive from a Wadi Natron Bedouin.

I have examined several immature birds of this species, and in their first plumage they strikingly resemble a small Desert Lark (*Ammomanes*), but can always be distinguished by the amount of black in the tail. Full plumage is obtained in a single moult, as I have found by keeping young birds in captivity. I have on two occasions met with this little Lark in the Giza Province, and on each occasion I found it wild and difficult of approach.

During the winter the Horned Larks apparently gather together in flocks, as Mr. G. E. Burnett Stuart tells me that on December 2nd & 3rd, 1908, he observed about six flocks in the desert near the Wadi Natron.

In November 1911 I saw a single specimen near Gaar at the extreme northern end of the Wadi.

AMMOMANES PHŒNICURA ARENICOLOR (Sundev.).

Ammomanes arenicolor (Sundev.), Shelley, p. 137.

Ammomanes phœnicura arenicolor (Sundev.), Hartert, Vög. d. pal. F. vol. i. p. 224.

This small Desert Lark is resident and breeds in the deserts round the Wadi Natron. I did not meet with it during my visits, but Mr. Balboni has sent me both adult and immature examples.

ALÆMON ALAUDIPES ALAUDIPES (Desf.).

Certhilauda desertorum Shelley, p. 135; Loat, Ibis, 1905, p. 457.

The Bifasciated Lark is extremely numerous and resident in the deserts immediately surrounding the Wadi Natron. I have a fine series of birds of all ages collected by Mr. Balboni and myself, as well as eggs. For some years I was somewhat puzzled by the differences in coloration of examples of this species. They appeared to be divisible into two groups: one a sandy-backed bird with small spots on the breast, and the other a grey-backed bird with large blotches almost coalescing on the breast. After examining a large series of freshly-killed examples, I now have no hesitation in saying that the sandy-coloured birds are not really adults, and that the adult plumage is not assumed until after the bird is a year old, when the upper parts become greyish and the breast is thickly blotched with black.

STURNUS VULGARIS VULGARIS.

Sturnus vulgaris Linn., Shelley, p. 157.

During my visit in November 1911 a few Starlings were seen daily, and on the 26th Mr. Balboni shot one at Gaar—the most northern lake on the Wadi. It is referable to the typical form.

CORVUS CORAX UMBRINUS.

Corvus umbrinus Shelley, p. 158.

Ravens are sometimes to be seen in the Wadi Natron, but up to this time I have no material from that locality and so, for the present, use the name given above for the Egyptian Raven. Skins and living birds which I have from time to time examined from Egypt and the Soudan, vary individually in the size of the bill, and I believe that there are at least two forms of the brown-necked Raven in the above-mentioned localities.

Corvus cornix Linn.

Corvus cornix Shelley, p. 159.

Corvus cornix sharpei Hartert, Vög. d. p. F. vol. i. p. 10.

Mr. Balboni tells me that in March 1911 he met with a small flock of Hooded Crows in the Wadi Natron and many occurred in the autumn of 1911. I cannot separate Egyptian "Hoodies" from British specimens, much as I should like to do so. In habits they are absolutely different, but in size and coloration they seem to be the same.

Caprimulgus europæus.

Caprimulgus europæus Shelley, p. 174.

On May 8th, 1910, Mr. Balboni shot and forwarded to me an adult female Nightjar belonging to this species. The body was coated with fat, thereby shewing that the bird was about to continue its northward migration.

Caprimulgus ægyptius ægyptius Licht.

Caprimulgus ægyptius Shelley, p. 175.

On March 18th, 1910, I shot two adult females of the dark form of this Nightjar. These are the only two specimens I have of this form from the Wadi Natron, and it seems certain that *C. æ. ægyptius* is only a visitor to Lower Egypt on migration.

Caprimulgus ægyptius saharæ.

On March 25th, 1910, I shot two males of this well-marked pale form of Nightjar.

I have since received three examples shot by Mr. Balboni in the Wadi: a male May 8th, 1910, a female June 8th, 1910, and a male June 13th, 1910. These were undoubtedly breeding birds, and are of a very sandy coloration.

Iynx torquilla torquilla.

Iynx torquilla Shelley, p. 161.

On March 24th, 1910, I shot a male Wryneck in the Wadi. It was sitting out in the desert about half a mile from the nearest lake, and appeared to have just arrived.

ALCEDO ISPIDA PALLIDA.

I have two males of this subspecies of Kingfisher collected by Mr. Balboni on August 18th and 29th, 1910, respectively. These are the only records I have of this bird in the Wadi, where—as there are no fishes—there is nothing to attract them.

All the specimens of *Alcedo ispida* which I have examined from Egypt are referable to this form, which is smaller, with shorter wings, and a longer and more slender bill than *Alcedo i. ispida*.

CORACIAS GARRULUS.

Coracias garrulus Shelley, p. 168.

On August 20th, 1910, Mr. Balboni obtained an adult male Roller which had just started to moult. Nine days later he obtained an immature specimen. Both of these are now in my collection.

MEROPS APIASTER.

Merops apiaster Shelley, p. 169.

I have three examples of this Bee-eater which were shot by Mr. Balboni during May 1910.

MEROPS PERSICUS PERSICUS.

Merops ægyptius Shelley, p. 170.

The Blue-cheeked Bee-eater visits the Wadi Natron earlier than the "common" species. I have specimens obtained as early as April 1st, 1910.

I do not know whether this bird breeds in the Wadi Natron.

MEROPS LAMARKI CLEOPATRA (Nicoll).

Mr. Balboni saw a single example of a little Green Bee-eater in the Wadi in the autumn of 1910. Unfortunately, he was unable to secure it, but there is little doubt that it belonged to this, the Northern form.

Hartert has pointed out that "*lamarki*" is the correct specific name of the small Green Bee-eaters and takes precedence of "*viridis*."

UPUPA EPOPS EPOPS.

Upupa epops Shelley, p. 155.

The European or Migrating Hoopoe passes through the Wadi during March, but I have at present no records of this form during the autumn migration. While in the Wadi in March I frequently saw small flocks of ten or a dozen examples passing north, and a few solitary individuals were always to be seen near the houses probing in the sand for food. I have no record of Hoopoes nesting in the Wadi Natron, and I did not meet with Brehm's Hoopoe (*U. epops major*) there, though I found the latter at Khatalb, at the head of the light railway about twenty miles east of the Wadi and in the Nile Valley, in November 1911.

CUCULUS CANORUS CANORUS Linn.

Cuculus canorus Shelley, p. 162.

I have an immature Cuckoo shot by Mr. Balboni on September 20th, 1910, and one assuming adult plumage shot on September 25th, 1911. I did not meet with this species during my visit in March.

ASIO ACCIPITRINUS.

Asio accipitrinus Shelley, p. 179.

I shot two Short-eared Owls during my visit in March. In both cases these birds were flushed from a large patch of dried bulrushes.

ASIO OTUS (Linn.).

Asio otus Shelley, p. 178.

On November 25th, 1911, I shot a female Long-eared Owl. It was taking shelter during the daytime in a row of small eucalyptus trees.

SCOPS GIU.

Scops giu Shelley, p. 178.

Mr. Balboni has sent me two Scops Owls, one shot on April 26th, 1910, and one on April 16th, 1911. The bird is doubtless a visitor only during migration.

Mr. Loat saw a small Owl in the Wadi which he thought might have been a Scops Owl.

ATHENE NOCTUA GLAUX.

Carine meridionalis Shelley, p. 177.

I have at present no specimens of the Little Owl from the Wadi Natron, but during my stay in November 1911 I saw several examples towards dusk, amongst rocks in the desert. None were seen in March 1910.

[BUBO ASCALAPHUS.

Bubo ascalaphus Shelley, p. 180.

I have no specimens of this Owl from the Wadi Natron, but Mr. Balboni tells me that he has met with it there.]

CIRCUS CYANUS (Linn.).

Circus cyanus Shelley, p. 182.

On my arrival in the Wadi on November 22nd, 1911, Mr. Balboni gave me a young female Hen Harrier which had been shot the previous day. I subsequently saw one or two individuals in the brown plumage of immaturity, but was unable to obtain further specimens.

CIRCUS ÆRUGINOSUS (Linn.).

Circus æruginosus Shelley, p. 181.

The Marsh Harrier was frequently seen during my visit in March, and Mr. Balboni has since forwarded several immature examples. Possibly it nests in the great tracts of bulrushes which fringe most of the Lakes. In November 1911 I saw a few Marsh Harriers near the Salt Lakes.

CIRCUS MACROURUS.

Circus pallidus Sykes, Shelley, p. 183; Loat, Ibis, 1905, p. 458.

When travelling by train to the Wadi Natron in March 1910, I saw an adult male of this species, just before we sighted the Wadi. It was circling over the desert.

During my visit I saw one or more adult examples daily, and specimens were obtained.

BUTEO FEROX FEROX (Gm.).

Buteo ferox Shelley, p. 201.

On March 21st, 1910, a single Long-legged Buzzard was seen. This species is easily distinguished from *B. buteo* *desertorum* by its larger size, different coloration, and longer tail. Adult birds have paler heads and tails than younger birds.

AQUILA BONELLII Temm.

Aquila bonellii Shelley, p. 206.

I saw a Bonelli's Eagle on November 27th, 1911, flying over the cultivated land near the factory.

CIRCAËTUS GALLICUS (Gm.).

Circaëtus gallicus Shelley, p. 202.

On June 15th, 1911, Mr. Balboni sent me a fine living example of this Eagle which had been caught in the Wadi. He tells me that he found a nest of this species containing two young birds which he tried, without success, to keep alive.

AQUILA PENNATA (Gm.).

Aquila pennatus Shelley, p. 207.

On May 1th, 1910, I received in the flesh, a fine example of the Booted Eagle shot by Mr. Balboni on the previous day.

ACCIPITER NISUS.

Accipiter nisus Shelley, p. 185.

During the latter part of November 1911 I saw a single Sparrow-Hawk daily, but no examples were obtained. Mr. Balboni tells me that he has seen large numbers together during migration.

ACCIPITER BREVIPES Severtz.

Not mentioned by Shelley nor by any previous writers.

On April 30th, 1910, I received an immature example of this Sparrow-Hawk from Mr. Balboni, who had shot it on the previous day.

I now have two specimens of this species from Egypt, one from the Wadi Natron, and another from Giza, September 18th, 1908, but both are immature.

The Levant Sparrow-Hawk is easily distinguishable from *Accipiter nisus,* not only by the large drop-shaped marking on the under parts (in immature specimens), but by the comparatively short middle toe. In *A. nisus* two joints of the middle toe project beyond the claw of the other two toes, whereas in *A. brevipes* only one joint does so.

MILVUS MIGRANS ÆGYPTIUS.

Milvus ægyptius Shelley, p. 196.

I have a specimen of a "Black Kite" shot in April 1910 by Mr. Balboni, and in November 1911 I saw another. For the present I refer them to the above-named race. Although the specimen in my collection has a jet-black bill, I have similar examples from Giza. The coloration of the bill seems to vary considerably, from jet-black to clear yellow, irrespective of age or season, though it should be noted that all seemingly *adult* birds with *black* bills which have so far passed through my hands are in worn or poor plumage, and are usually infested with feather-lice. It seems probable therefore that only really perfectly conditioned birds have the yellow bill, and that the young bird assumes the yellow bill at its first moult.

This Kite is only a straggler to the Wadi from the Nile Valley, as there are no trees tall enough to offer suitable places for nesting.

PERNIS APIVORUS (Linn.).

Pernis apivorus Shelley, p. 199.

On June 2nd, 1910, Mr. Balboni shot an adult male Honey-Buzzard, which he forwarded to me in the flesh.

The occurrence of this bird in such a place as the Wadi Natron is sufficiently remarkable in itself, but that it should occur in June is still more strange. It may be that it was a non-breeding bird, or possibly it had lost its way.

FALCO PEREGRINUS Linn.

Falco peregrinus Shelley, p. 186.

On several occasions during my visit in March, I saw large Falcons which I believe to have been of this species, as they probably were. On November 26th, 1911, while returning from the extreme north of the Wadi, Mr. Balboni and I rode up to within a short distance of a fine adult male Peregrine. It was clearly identified, but our collecting guns were too small to obtain it.

Falco sacer Schl.

Falco sacer Shelley, p. 190.

On November 26th, 1911, at Gaar, the northernmost lake in the Wadi, we saw a very large Sacer Falcon sitting on the expanse of natron which surrounds the lake. Repeated efforts were made to obtain this bird, but although it was "gorged" and only flew a short distance when put up, it was quite unapproachable.

Falco æsalon Linn.

Falco æsalon Shelley, p. 191; Loat, Ibis, 1905, p. 458.

On November 26th, 1911, I saw several Merlins at Gaar, and during the rest of my stay I met with a single example daily in the cultivated land, where it was doing great execution amongst the Skylarks.

Falco subbuteo Linn.

Falco subbuteo Shelley, p. 192.

A single Hobby was seen on November 26th, 1911.

Falco vespertinus Linn.

Falco vespertinus Shelley, p. 193.

Although I was too early in March 1910 to meet with this Falcon, I have since, through the kind help of Mr. Balboni, obtained a most interesting series of five skins from the Wadi, *i. e.*:—

1. ♂ adult, May 11th, 1910.
2. ♂ vix ad., May 11th, 1910. In this specimen the greater wing-coverts are those of the immature bird. The upper breast has a number of red feathers intermingled with the blue ones, and there is a large patch of red feathers on the nape.
3. ♂ juv., May 16th, 1910. In this specimen the upper parts are bluish with the exception of the nape, which is rust coloured. Under parts rusty white, with a few bluish feathers shewing on the breast; chin and throat blue. Thighs deep rusty red. Greater wing-coverts much worn.

4. ♀ adult, May 16th. Under parts washed with deep rust colour.
5. ♀ adult, May 22nd. Under parts whitish with a wash of pale rust colour; the nape almost white.

CERCHNEIS TINNUNCULUS.

I have two specimens of Kestrels from the Wadi Natron obtained by Mr. Balboni. One, a male shot on May 6th, 1910, is in nearly full plumage, the tail only shewing signs of immaturity. This example is quite distinct from the resident Kestrel of the Delta, *C. t. carlo* Hartert & Neumann, being larger and much paler both above and below. It belongs, I believe, to an undescribed race. An immature bird of similar size was shot by Mr. Balboni on August 24th, 1910, and is now in my possession.

I might add that I have a fully adult male example of this large pale race, which I shot near Aburoash in the Giza Province on December 23rd, 1910. This form is undoubtedly only a migrant to Lower Egypt, and its breeding quarters must be sought elsewhere.

CERCHNEIS CENCHRIS.

Falco cenchris (Cuv.), Shelley, p. 195.

On March 18th, 1910, I saw two female Lesser Kestrels in some eucalyptus trees in the Wadi and obtained both of them. Four days later a flock of twenty-five appeared, and of these—six examples—three males and three females were shot.

The Lesser Kestrel is *said* to be always distinguishable from *C. tinnunculus* by its white claws. I was surprised to find, however, that *none* of the eight examples referred to above had white claws!

The colour of the claws of the specimens obtained is as follows:—

No. 1354, ♂ adult. 22.3.10. "Claws blackish grey."
No. 1353, ♂ adult. 22.3.10. "Claws of a darker brownish flesh colour."
No. 1355, ♂ adult. 22.3.10. "Claws brownish grey."
No. 1356, ♀. 18.3.10. "Claws slaty brown."

No. 1360, ♀. 18.3.10. "Claws brownish."
No. 1359, ♀. 22.3.10. "Claws of a brownish flesh colour."
No. 1358, ♀. 22.3.10. "Claws brown."
No. 1357, ♀. 22.3.10. "Claws black"!

The notes on the colour of the claws were written on the backs of the labels by myself at the time, and it is interesting to note that out of the eight examples—three of which are adult males in full plumage—none have white claws.

We have a living male Lesser Kestrel in the Giza Zoological Gardens caught locally in the spring of 1910, which has white claws, and has had them since the time we received it, and this is the only example of the Lesser Kestrel with white claws that I have so far examined in Egypt.

ARDEA CINEREA.

Ardea cinerea Shelley, p. 266.

Grey Herons were seen daily during my visit in March. As there are apparently no fishes in the Wadi Natron, I presume that the food of this and other species of Herons which visit the locality consists of toads (*Bufo viridis arabicus*), which abound there.

ARDEA PURPUREA Linn.

Ardea purpurea Shelley, p. 156.

I have received two adult Purple Herons shot by Mr. Balboni on April 20th and 21st, 1910.

ARDEA GARZETTA.

Herodias garzetta Shelley, p. 268.

Mr. Balboni shot a White Egret—an adult male—on April 29th, 1910.

ARDEA RALLOIDES.

Ardeola comata (Pall.), Shelley, p. 269.

I have three specimens of the Squacco Heron from the Wadi Natron collected by Mr. Balboni.

♂. April 16th, 1910.
○. May 7th, 1910.
♀. May 13th, 1910.

BOTAURUS STELLARIS (Linn.).

Botaurus stellaris Shelley, p. 271.

Mr. Balboni sent me a female Bittern which he had shot on May 7th, 1910.

[It is somewhat surprising that neither Mr. Balboni nor I have met with *Ardetta minuta* in the Wadi. I fancy the reason for this is that owing to the non-existence of fishes there is not sufficient food for the bird, which is an abundant *resident* throughout the year in suitable spots in Lower Egypt.]

NYCTICORAX GRISEUS (Linn.).

Nycticorax griseus Shelley, p. 270.

The Night Heron appears to be a visitor to the Wadi Natron in spring and autumn, as at both seasons I have received examples from Mr. Balboni. Whether it winters there as it does in Lower Egypt generally, I am unable at present to say.

CICONIA CICONIA.

Ciconia alba Bechst., Shelley, p. 365.

On April the 18th, 1910, Mr. Balboni shot a White Stork and two days later another, both of which he forwarded to me.

PLEGADIS FALCINELLUS (Linn.).

Ibis falcinellus Linn., Shelley, p. 362.

I have three specimens of the Glossy Ibis from the Wadi: two males shot by Mr. Balboni on April 11th, 1910, and a female shot on May 7th, 1910. On the latter date Mr. Balboni saw at least one hundred of these Ibises—and a wonderful sight it must have been.

Shelley says that this bird "ranges throughout Egypt and Nubia, where it remains during the year." This I believe is hardly correct, as I do not know of a single instance of the Glossy Ibis breeding in Egypt, although it is a regular spring visitor on migration.

PHŒNICOPTERUS ROSEUS.

Phœnicopterus antiquorum Shelley, p. 272; Loat, Ibis, 1905, p. 459.

During my visit in March I saw a huge flock of Flamingos on one of the Salt Lakes.

Up to the present time I have no records of this bird nesting in the Wadi, and, as all the lakes become dry during the summer, I believe, that the Flamingo is only a winter visitor.

TADORNA CORNUTA.

Tadorna vulpanser Fleming, Shelley, p. 281.

Mr. Balboni shot a female Shelduck on the 23rd of December, 1910, which is now in my collection.

MARMARONETTA ANGUSTIROSTRA.

Capt. Shelley does not include the Marbled Duck in his 'Birds of Egypt,' yet it appears to be not uncommon in the Wadi Natron, where it breeds. I have fine examples collected by Mr. Balboni during the breeding season, and he tells me that he has found the young. Certainly most of the specimens in my collection are breeding birds.

[I have a record of this duck in the Fayoum in February and have seen it in April in the Delta].

On 21st November, 1911, Mr. Balboni shot a duck in the Wadi which is now in my collection. In coloration it somewhat approaches the Marbled Duck, but it is much *whiter* and *much* smaller and, moreover, the bill is of a different shape to that of any duck with which I am acquainted.

SPATULA CLYPEATA.

Rhynchaspis clypeata Shelley, p. 281; Loat, Ibis, 1905, p. 460.

The Shoveller is a common visitor during the autumn, winter, and spring to the Wadi, as elsewhere in Lower Egypt.

QUERQUEDULA CRECCA (Linn.).

Querquedula crecca Shelley, p. 286; Loat, Ibis, 1905, p. 460.

A common winter visitor. I saw Teal in March, and after my return Mr. Balboni sent me specimens. Although I have no record of this duck nesting either in the Wadi Natron or elsewhere in Egypt, it is quite possible that it may do so.

DAFILA ACUTA (Linn.).

Dafila acuta Shelley, p. 284; Loat, Ibis, 1905, p. 460.

Like the Shoveller and Teal, the Pintail is not uncommon during the winter months in the Wadi Natron. I have received several specimens from Mr. Balboni.

[MARECA PENELOPE (Linn.).

Mareca penelope Shelley, p. 288; Loat, Ibis, 1905, p. 460.

I believe I saw a Wigeon during my visit in March 1910.]

FULIGULA FERINA (Linn.).

Fuligula ferina (Linn.), Shelley, p. 289.

On 19th March I saw a female Pochard on one of the Salt Lakes.

FULIGULA RUFINA.

On 20th January 1911, Mr. Balboni shot a fine adult male of this handsome Pochard, which is now in my collection. Although Shelley did not meet with the Red-crested Pochard in Egypt it seems to be by no means uncommon in Lower Egypt during the winter months, and I now possess several specimens from the Delta.

FULIGULA CRISTATA (Linn.).

Fuligula cristata Shelley, p. 290.

On 21st March, 1910, I saw a Tufted Duck in the Wadi, on one of the Salt Lakes.

FULIGULA NYROCA.

Nyroca leucophthalma Bechst., Shelley, p. 288; Loat, Ibis, 1905, p. 460.

On 21st November, 1911, Mr. Balboni shot a White-eyed Duck, which is now in my collection.

ANAS PLATYRHYNCHA.

(*Anas boscas* vel *boschas* auctorum.)

Anas boschas Linn., Shelley, p. 283; Loat, Ibis, 1905, p. 460.

Mr. Balboni has met with the Mallard in the Wadi, but up to the present I have no specimens from there.

COLUMBA ŒNAS Linn.

Columba œnas Shelley, p. 213.

Although no late writers have given positive proof of the occurrence of the Stock Dove in Egypt, and even von Heuglin doubted its occurrence in that country (Orn. N.O.-Afr. p. 828), there is not the slightest doubt that it is a regular visitor in great numbers during the winter months.

Every winter during the past four years I have seen large flocks of Stock Doves in the Delta and near Cairo.

On 19th March, 1910, I saw one at close quarters in the Wadi, and should have probably obtained it but for the zeal of a brother "sportsman," who, getting ahead of me, put it up and missed it! However, during my visit in November I obtained two beautiful specimens—one shot by Mr. Balboni on the 24th, and another three days later.

A party of about four individuals frequented the cultivated land throughout my stay, but only these two examples were obtained.

TURTUR TURTUR ARENICOLA Hartert.

Turtur turtur arenicola Hartert, Nov. Zool. vol. i. p. 42 (1894).

This pale form of the Turtle-Dove is a regular visitor to Egypt on both spring and autumn migrations.

I have an adult male shot by Mr. Balboni on April 28th, 1910, in the Wadi Natron.

Shelley ('Birds of Egypt,' p. 214) states that the Turtle-Dove (*T. auritus*) frequently breeds in Egypt. Up to the present I have no other records of this fact, but if a Turtle-Dove does so it would be interesting to know whether the Egyptian breeding bird is the typical *Turtur turtur* of Europe, or the present form. This form is a common visitor to Egypt during both migrations, but I have no records of it from the Wadi.

PTEROCLES CORONATUS Licht.

Pterocles coronatus Shelley, p. 220.

There are several living examples of the Crowned Sand-grouse in the Giza Zoological Gardens which were captured in the Wadi Natron by a Bedouin.

During my visit in March 1910 I frequently heard that Sand-grouse were to be seen, but I did not meet with any.

[CACCABIS CHUKAR subsp.?

Mr. Balboni tells me that he has seen large Red-legged Partridges on several occasions in the Wadi, but up to the present time I have no specimens of this bird.]

COTURNIX COTURNIX.

Coturnix communis Bonn., Shelley, p. 223; Loat, Ibis, 1905, p. 458.

During my stay in March 1910 Quails were very numerous, and I obtained some specimens, all of which belong to this form. I now much regret that I did not pay more attention to these birds, as I have since found that *C. c. capensis* occurs in Egypt, and I have specimens of this form from Giza.

A few Quails nest in Lower Egypt but I have no breeding examples, so I cannot say to which form such birds belong.

A series of adult males from Egypt now before me vary considerably in the colour, shape, and size of the "anchor" mark on the throat. In some this mark is very well defined and black, while in one specimen it is reduced to two small patches of chestnut on the sides of the neck!

RALLUS AQUATICUS Linn.

Rallus aquaticus Shelley, p. 273; Loat, Ibis, 1905, p. 460.

The Water-Rail is a most abundant resident in the Wadi

Natron, and thanks to Mr. Balboni's kind help I have a good series of birds from quite young fledglings to adults, as well as many eggs.

Several adults (in autumn) in my collection have moulted all their primaries at once, and are in a flightless condition. Shelley says that this species is only a winter visitant to Egypt, but there is no doubt that it is a common resident in suitable localities. My friend Major R. Sparrow has eggs from Mehas, so that it certainly breeds in the Delta as well as in the Wadi Natron. During my visit in November 1911 I was greatly interested to find how noisy these birds were (I was previously under the impression that the curious squealing grunting call of the Water-Rail was only uttered in the breeding season), but every morning I heard numbers calling at daybreak. The natives of the Wadi call the Water-Rail "Kelb el tūr," which means "the dog bird." Evidently this name is given owing to its loud voice.

PORZANA MARUETTA Leach.

Porzana maruetta Shelley, p. 274.

I have a Spotted Crake shot by Mr. Balboni on the 29th of October, 1910, in the Wadi Natron.

GALLINULA CHLOROPUS (Linn.).

Gallinula chloropus Shelley, p. 275.

The Moorhen is an abundant resident in the Wadi Natron, and I have a good series of birds of all ages collected by Mr. Balboni.

Some Egyptian examples of this species are much smaller than British specimens, but they vary much in size, and at present I cannot separate the Egyptian breeding bird, although their eggs seem very small. One of my specimens has a small amount of buff on the under tail-coverts.

[EUPODOTIS ARABS?

I have frequently heard of Large Bustards being seen on the Wadi, but up to the present have not obtained an example. I presume them to be of this species.]

ŒDICNEMUS ŒDICNEMUS.

Œdicnemus crepitans Shelley, p. 230.

I have an adult female Saharan Stone-Curlew, shot on May 21st, 1910, by Mr. Balboni, who also sent me two eggs of the bird. This form differs from the typical Stone-Curlew in being paler and more sandy coloured on the upper parts.

ŒDICNEMUS SENEGALENSIS.

Œdicnemus senegalensis Nicoll, Ibis 1909, p. 642.

Until I found the Senegal Stone-Curlew to be a common resident near Cairo—in fact *the* common Stone-Curlew of Lower Egypt, it had not previously been recorded from anywhere north of Luxor.

During my visit to the Wadi Natron in March 1910 I saw a pair of these birds at close quarters, and in May of that year Mr. Balboni gave me two eggs of this species which he had taken in the Wadi.

The eggs of the Senegal Stone-Curlew are easily distinguishable from those of *Œ. œ. saharæ* by the bold black blotches, and shew none of the fine waved lines which are characteristic of the Saharan and typical *Œdicnemi*.

GLAREOLA PRATINCOLA Linn., and

GLAREOLA PRATINCOLA MELANOPTERA auctorum.

Glareola pratincola Linn., Shelley, p. 227.

Glareola nordmanni Fischer, Shelley, p. 229.

Glareola pratincola Linn., Nicoll, Ibis, 1909, p. 643.

Although my previous remarks on the two so-called forms of Pratincole have been received with much friendly criticism, I still adhere to the opinion that the Common and Black-winged forms are not separable, but are merely varieties of the same race. I now have a fair series of Egyptian specimens of Pratincoles, and find that not one of the so-called differences is constant. *G. p. melanoptera* is said to have the under wing-coverts and axillaries entirely black and the secondaries *not tipped* with white. I certainly have such specimens, but I also have some with red under wing-coverts and axillaries, but no white on the secondaries!

Moreover I have specimens with intermingled red and black under wing-coverts. There is also a decided difference in the colour of the under parts of individuals irrespective of sex!

Such being the case I unite the two so-called forms under one heading, and at present recognise but one species, *i. e. Glareola pratincola* Linn., as occurring in Egypt.

I have two specimens from the Wadi Natron: a male shot on April 19th, 1910, and another male shot on the following day, both sent to me by Mr. Balboni. The latter has very red under wing-coverts and well-defined white tips to the secondaries, as well as being deeply coloured on the breast. The former is pale below, has no white tips to the secondaries, and has the under wing-coverts dull red and black.

CURSORIUS GALLICUS Gmel.

Cursorius gallicus Shelley, p. 229; Loat, Ibis, 1905, p. 458.

Fairly common and resident in the Wadi. During my visit I saw several pairs, which were so wild that they were quite unapproachable.

On July 20th, 1910, Mr. Balboni shot an adult male together with a young female. The latter is pale sandy buff above with small black spots on the feathers of the mantle and wing-coverts. The scapulars are marked with irregular V-shaped markings.

CHARADRIUS PLUVIALIS Linn.

Charadrius pluvialis Shelley, p. 235.

On November 26th, 1911, I saw several Golden Plovers at Gaar, in the Wadi Natron, and one example was obtained.

ÆGIALITIS PECUARIA (Temm.).

Ægialitis pecuarius Shelley, p. 239.

Although Kittlitz's Plover is a common resident in the Delta and Fayoum, I only have one record from the Wadi Natron, *i. e.*, a pair—one of which I obtained on March 20th, 1910. I specially looked out for this Plover during my visit, and the only two seen were met with late one evening on the edge of a salt lake, when a long shot secured a fine adult male in nearly full breeding plumage.

ÆGIALITIS ALEXANDRINA.

Ægialitis cantianus (Lath.), Shelley, p. 240; Loat, Ibis, 1905, p. 458.

The Kentish Plover is a most abundant resident in the Wadi Natron, as it is elsewhere in suitable localities in Lower Egypt. At the time of my visit in March a few pairs had commenced to breed. In November 1911 I saw large flocks of Kentish Plovers. I believe that the "incubation patch" of this Plover has not previously been described. I have examined several breeding females, and in each case find that the "patch" is not universal on the abdomen as in Passerine birds, but that there is a patch for each egg! In the present species there are a pair of patches on the lower breast and a third on the abdomen, the number of incubation patches corresponding with the number of eggs laid.

ÆGIALITIS HIATICOLA.

Ægialitis intermedius (Ménétr.), Shelley, p. 242.

Ægialitis hiaticola intermedia Nicoll, Ibis, 1909, p. 641.

During my visit in March 1910 I saw a few Ringed Plovers, but have no specimens from the Wadi.

Examples of this Plover from Lower Egypt seem smaller and darker than British specimens, but, as I at present have no perfectly adult specimens, I am not sure as to whether they are really separable.

In my former paper I followed Shelley in using the name *intermedia* of Ménétries for this species.

ÆGIALITIS MINOR.

Ægialitis minor Shelley, p. 242.

The Little Ringed Plover was extremely common during my visit in March, and several perfectly adult specimens were obtained. From the behaviour of some of the birds I have little doubt that they were about to nest.

The call-note of this species is totally different to that of the Common Ringed Plover.

VANELLUS VANELLUS.

Vanellus cristatus Shelley, p. 231; Loat, Ibis, 1905, p. 558.

On December 20th, 1910, Mr. Balboni shot a Lapwing, which is now in my collection. I saw many examples during my visit in November 1911.

HOPLOPTERUS SPINOSUS.

Hoplopterus spinosus Shelley, p. 232; Loat, Ibis, 1905, p. 458.

Mr. Balboni has sent me several examples of the Spur-winged Plover, shot during May and August 1910. I do not know whether this species nests in the Wadi Natron. I did not see it in March, and it may be only a straggler there. In November 1911 I saw several examples, one of which was obtained.

RECURVIROSTRA AVOCETTA Linn.

Recurvirostra avocetta Shelley, p. 260; Loat, Ibis, 1905, p. 459.

I have a pair of Avocets obtained through Mr. Balboni: a male shot April 17th, 1910, and a female on May 8th, 1910. Mr. Balboni is of the opinion that this species breeds in the Wadi Natron.

HIMANTOPUS CANDIDUS Bonn.

Himantopus candidus Shelley, p. 260.

I have received four examples of the Black-winged Stilt from Mr. Balboni, shot in April, May 16th and 17th, and August 25th, 1910. I did not see this species during my stay in March or in November.

HÆMATOPUS OSTRALEGUS Linn.

Hæmatopus ostralegus Shelley, p. 243.

On August 15th, 1910, Mr. Balboni shot an adult Oyster-catcher in the Wadi Natron. This example is now in my collection, and is one of the most interesting birds I have yet received from the locality. What can have induced this bird to leave the shore, where shellfish are abundant, and proceed to such a place as the Wadi Natron, where suitable food is almost absent, is difficult to say. Unfortunately I was away when the bird was forwarded, so I cannot say in what condition the body was at the time that it was shot. Just before I visited the Wadi in November 1911, Mr. Balboni met with a small flock of Oystercatchers at the southern end of the Wadi, but was unable to shoot any.

GALLINAGO CŒLESTIS.

Gallinago media Leach, Shelley, p. 249; Loat, Ibis, 1905, p. 459.

This Snipe is a common visitor during the spring and autumn. In March 1910 I saw many at the fresh-water springs near the Salt Lakes, and examples were obtained. Mr. Balboni has since sent me further specimens. Again, in November 1911 I saw a number of Snipe. Up to the present time I have no records of this species breeding in the Wadi, but as I believe it does so in the Delta, it *may* be a resident in the Wadi Natron.

GALLINAGO GALLINULA.

Gallinago gallinula Shelley, p. 249; Loat, Ibis, 1905, p. 459.

During March 1910 I saw a few Jack Snipe in the Wadi Natron, and in November 1911 several were again seen.

RHYNCHÆA CAPENSIS.

Rhynchæa capensis Shelley, p. 250.

I have received specimens of the Painted Snipe from Mr. Balboni, shot in spring and autumn, but have no records of the species during the breeding-season. There is no doubt that it breeds in the Delta, however, and it may do so in the Wadi Natron.

TRINGA ALPINA.

Tringa cinclus Shelley, p. 253.

During my visit in March 1910 I saw a few Dunlins, and on October 23rd, 1910, Mr. Balboni shot one, which he forwarded to me. Unfortunately, the specimen was too much decomposed for preservation. In November 1911 I saw two Dunlins near the factory.

TRINGA MINUTA.

Tringa minuta Shelley, p. 251; Loat, Ibis, 1905, p. 459.

The Little Stint is a most abundant spring and autumn visitor to the Wadi Natron. In fact, it is, I should say, the commonest wader during the spring migration, with the exception of the Ruff, which occurs there in vast numbers.

I have some beautiful specimens of Little Stints in full breeding-plumage, shot in May by Mr. Balboni.

One female example—shot on May 10th, 1910, which is before me as I write—shews transition in some of the feathers from winter to summer plumage by colour-change, black patches appearing in the centre of the worn grey feathers.

The change of colour of feathers, otherwise than by "abrasion," is nowadays looked upon as a "fable" by many ornithologists. Yet that such a change does take place is an undoubted fact, and those who like the writer have studied living waders, etc. in captivity, have noted the gradual change of individual feathers.

In November 1911, I met with great numbers of Little Stints on the shores of the lakes, and several specimens were obtained.

TRINGA TEMMINCKI.

Tringa temminckii Shelley, p. 252.

During March 1910 I found Temminck's Stint to be abundant in the Wadi Natron, although in far smaller numbers than the Little Stint. Moreover, the former was seldom met with on the edge of the lakes—preferring the smaller fresh-water pools. All those obtained were in full winter plumage.

TRINGA SUBARQUATA.

Tringa subarquata Shelley, p. 253.

During April and May 1910 Curlew Sandpipers must have been abundant in the Wadi, for I received many examples from Mr. Balboni. Unfortunately, owing to the hot weather, a number of these arrived in too bad a state for preservation, but I have five perfect examples from the Wadi now before me. An adult male, shot on May 17th, is one of the finest summer-plumaged Curlew Sandpipers that I have ever seen. Nearly the whole of the contour feathers are of a deep rust-red, those of the upper parts being marked with deep black. The other four are females in varying stages towards summer plumage, but all of them shew distinct signs of colour-change in the worn winter feathers of the upper parts. One shot on May 5th shews this change particularly well, for nearly all the feathers of the mantle, although much worn at the tips, are black with rufous markings and a grey border. Had these feathers been newly *moulted* they could not have shown such signs of wear at so early a date. The feathers of the under parts have apparently been acquired by moult.

TOTANUS STAGNATILIS.

Totanus stagnatilis Shelley, p. 257; Loat, Ibis, 1905, p. 459.

During April 1910 Mr. Balboni sent me several fine examples of the Marsh Sandpiper.

A fine pair of adults in full summer plumage, shot on April 12th, 1910, are before me as I write. Of these two birds the female is more heavily marked with black above than is the male, and the black spots on the breast are larger and more numerous.

TOTANUS CALIDRIS.

Totanus calidris Shelley, p. 255; Loat, Ibis, 1905, p. 459.

A spring and autumn visitor to the Wadi Natron, where it also winters. On March 23rd, 1910, I shot a Redshank in nearly full summer plumage. So fat was it that the skin of the breast split when it fell.

I have received specimens from Mr. Balboni shot in August 1910. In November 1911 I found large flocks of Redshanks on the shores of all the Salt Lakes, and I frequently observed large parties flying over the desert from north to south.

MACHETES PUGNAX (Linn.).

Machetes pugnax Shelley, p. 246.

The magnitude of the spring migration of Ruffs in Lower Egypt must be seen to be believed. My visit to the Wadi Natron in March 1910 coincided with the northward movement of this species, and I must have seen many thousands of Ruffs in a few days. On March 24th a very strong migration of birds took place, and on the evening of that day and throughout the following day the shores of one of the Salt Lakes was literally black with Ruffs and Reeves—flock after flock, some numbering hundreds, were seen arriving and settling on the already crowded shore. Nearly all of them were still in winter plumage or only just beginning to moult, though I saw one with a partial "ruff." During my stay I saw several examples with a pure white neck and no ruff, and one of these was shot and given to me by Mr. Balboni.

TOTANUS HYPOLEUCUS.

Actitis hypoleucos Shelley, p. 259.

Several Common Sandpipers were seen during my visit in March, but no examples were obtained.

TOTANUS OCHROPUS (Linn.).

Totanus ochropus Shelley, p. 258.

The Green Sandpiper was frequently met with in March 1910, nearly always in the fresh-water or brackish pools, and examples were obtained. In November 1911 I met with fair numbers in similar situations.

TOTANUS GLAREOLA (Linn.).

Totanus glareola Shelley, p. 259; Loat, Ibis, 1905, p. 459.

The Wood Sandpiper was fairly numerous during March 1910. Most of those seen frequented the fresh-water springs near the Salt Lakes.

I have an adult female got by Mr. Balboni on April 18th, 1910, and an immature bird on August 25th, 1910.

This species passes through Lower Egypt in large numbers during the spring migration, so that its occurrence in the Wadi Natron is not unexpected.

TOTANUS FUSCUS Leisler.

Totanus fuscus Shelley, p. 255.

On 13th May, 1910, Mr. Balboni shot three female Dusky Redshanks, which he forwarded to me.

This is the only record I have of the species in spring from the Wadi Natron. On November 9th, 1910, Mr. Balboni obtained a female in winter plumage, which is now in my collection.

TOTANUS CANESCENS.

Totanus canescens, Shelley, p. 256.

I saw Greenshanks in the Wadi Natron during my stay in March 1910.

LIMOSA BELGICA.

Limosa ægocephala Shelley, p. 245; Loat, Ibis, 1905, p. 458.

I have a male Black-tailed Godwit shot by Mr. Balboni on April 20th, 1910.

This specimen had just begun to assume its summer plumage by colour-change. Worn *winter* feathers of the upper parts are shewing black centres margined with rufous; the feathers of the under parts, *i. e.* breast and throat, are pale rufous with a subterminal blackish bar and have worn white tips. Some of the worn winter feathers of the upper parts have only a narrow black line down the centre, while others have a trifurcate black patch on the centre.

NUMENIUS ARQUATA.

Numenius arquata Shelley, p. 243; Loat. Ibis, 1905, p. 458.

I have a Curlew shot on January 11th, 1911, by Mr. Balboni.

During my visit in March 1910 I saw several Curlews but found them to be absolutely unapproachable, and the same was the case with a few seen in November 1911.

HYDROCHELIDON NIGRA.

Hydrochelidon fissipes Shelley, p. 300.

On 24th August Mr. Balboni shot an immature Black Tern, which he forwarded to me.

HYDROCHELIDON LEUCOPTERA.

Hydrochelidon nigra Shelley, p. 301.

A host of birds must have visited the Wadi Natron on the 10th of May, 1910, for on that day Mr. Balboni shot and sent to me no less than ten adult White-winged Black Terns as well as five Reeves, one Marsh Sandpiper, four Little Stints, one Bee-eater, two Spanish Sparrows, and two Golden Orioles.

Females of the present species differ from the males in having less white on the shoulders and grey tails, and in being less sooty black below; whereas adult males have pure white rectrices and are jet-black on the under parts.

LARUS RIDIBUNDUS Linn.

Mr. Balboni sent me a Black-headed Gull which he shot on December 23rd, 1910.

I believe this species to be only a winter visitor to Egypt, and not a resident as Capt. Shelley says it is. In November 1911 I saw a single example on one of the Salt Lakes near Bir Hodmer.

PODICEPS FLUVIATILIS.

Podiceps minor Shelley, p. 314; Loat, Ibis, 1905, p. 560.

This little Grebe is probably a resident in the Wadi Natron, where it breeds. I have three specimens collected by Mr. Balboni: one, a female assuming breeding plumage, shot on February 15th, 1911; one adult female in full breeding plumage, shot on June 3rd, 1911; and an immature male on June 5th, 1910. In November 1911 I saw a large number on the lake at Gaar.

XXIII.—*Bird-notes in two Andalucian Sierras.*

By Captain H. Lynes, R.N., M.B.O.U.

During the spring of 1910 the authors of 'Unexplored Spain,' Mr. Walter Buck and Mr. Abel Chapman, very kindly invited me to accompany them on some of their expeditions into the sierras of southern Andalucia.

Readers of that charming book will have found much of novelty and interest therein concerning the ornithology of these sierras, and the authors agree with me in thinking that a few of the purely ornithological results of the expeditions, necessarily excluded from a book of so wide a scope as 'Unexplored Spain,' may be of interest to readers of 'The Ibis.'

The following notes concern :—

(*a*) San Cristobal,* the dominant mass of the Serrania de Ronda, a small sierra about forty miles north of Gibraltar.

(*b*) A spur of the Sierra Nevada between Granada and the Picacho de la Veleta, bordering the upper waters of the River Monachil.

The admirable descriptions in 'Unexplored Spain' render detail as to the features of these regions unnecessary, but for the benefit of those who have not yet read the book, the following general outlines may here be given.

San Cristobal.

San Cristobal is a very distinctive mass of limestone crags of similar geological formation to the more familiar country in the neighbourhood of Gibraltar; but, rising head and shoulders above the surrounding peaks and ridges of its own sierra, it has no rival in altitude in that part of Spain save to the south-east and where the Sierra de las Nieves and the Sierra Bermeja terminate the great coastal mountain-chain that stretches from Cape de Gata almost to the "Rock."

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* To be quite accurate, it should perhaps be stated that the name of this mountain in all Spanish maps is the "Sierra del Pinar," the title "San Cristobal" applying only to one of its loftiest and most precipitous peaks—the "Cumbre de San Cristobal," impending almost directly above Grazalema. Further, it may be added that in itself the Spanish name is wrong, since it ought to be "Sierra del Pinsapal" (*vice* Pinar).

The height of San Cristobal is given in Artero's Atlas (Barcelona, 1908) as nearly 2400 metres. It is, however, rather less than 6000 feet, and the highest point we passed in 1910 appeared, by aneroid, to be approximately 5400 feet.—A. C.

From even so low a point as 1000 feet below its summit, there is a glorious view of the Mediterranean and Straits of Gibraltar, backed by the Atlas Mountains, a vista wherein the "Rock," though viewed across the tops of some forty miles of rugged limestone crags and precipices, hills and dales with scarce a visible sign of human habitation, appears a prominent feature of the middle distance.

Roughly speaking, San Cristobal is in "plan" an oval, the longer axis lying approximately east and west. Its northern side is nearly all precipice and talus, and might be described as "45° where it isn't perpendicular." Its upper regions (about 3500–5000 ft.) form, nevertheless, the site of a forest of Pinsápo pines (*Abies pinsapo*)—rapidly, alas, diminishing under the influence of axe and avalanche. This remarkable species of pine is unknown to exist elsewhere on earth, save here and on the northern faces of two adjacent sierras.

Lower down, on the northern face, the upper trees mingling with the lowest pinsápos, is a zone of scattered groves of ilex and wild olive-trees extending more or less down to the base.

The other sides are chiefly steep slopes with stones and boulders innumerable and smaller crags here and there. Wherever the soil is sufficient, scrub is to be found; at the base flourishing with all the wealth of the Andalucian "monte"* but diminishing in kind and luxuriance to the upper regions, where the few species assume a stunted, hard and prickly growth, opposed to everything but the maintenance of their own existence.

Spurs run out from the north and east faces at about 3000 and 1000 ft. respectively, connecting it with the other ridges and peaks of its sierra, otherwise San Cristobal rises "solo" from elevations of about 1500 ft. at its western, to 2500 ft. at its eastern end.

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* *Lit.*, brushwood.

Such is the "San Cristobal" of this paper, the object of which is to treat of altitudes which have received but scant attention from the pens of ornithologists as compared to the plains, marismas, woods, and hills of the lowlands. But for the purposes of comparison mention will occasionally have to be made of the surrounding country (so far as the writer's personal acquaintance goes, that lying between Jerez and Ronda), so that a few words concerning it will not be amiss.

In the Jerez direction, *i. e.* to the westward, the aspect is that of a series of ridges and groups of hills diminishing in altitude from about 2000 to 1000 ft. and becoming more and more undulating, less steep and craggy, until at about twenty-five miles the low rolling hills and, finally, the plains and marismas stretch out for the last twenty miles to meet the Atlantic seaboard.

The latter zone it is proposed in this paper to style the "lowland."

The former zone, which it is proposed to style the "foothills," is a country of confined and fairly well watered valleys; of upland stretches, pleasantly clothed with cork and ilex trees wherever the carbonero's hand has not been too free; and of scrub-clad hillsides, with groves of ilex ("encina") and the deciduous Spanish oaks ("roble") here and there.

Many of these hills and ridges are crowned with crags or with piles of huge boulders; sometimes a stream, in the course of ages, has eaten its way through a limestone ridge and flanked its course by a series of perpendicular walls; while here and there a precipice concealed among the folds of the hills affords a surprise to the wayfarer by suddenly appearing above him as he rounds a corner; and it is to such "features" as these that the "foothills" owe most of their ornithological wealth, or at any rate their chief interest: here are to be found the Vultures, Golden and Bonelli's Eagles, Eagle-Owls, the colonies of House- and Crag-Martins, Blue Rock-Thrushes, Black Wheatears, &c., &c. Similar features, but on a smaller scale and at greater intervals, are reproduced in the "lowlands."

From San Cristobal in the Ronda direction, *i.e.* to the eastward, it is much the same sort of country—"foothills"; but, as might be expected from its approach towards the sierras of the Province of Malaga, the ground-level is higher, being about 2500 ft. above sea-level.

SIERRA NEVADA.

Though we may be able to take a fairly comprehensive survey of the bird-life on a single mountain like San Cristobal, the undertaking becomes obviously far more difficult over a vast mountain-mass such as the Sierra Nevada, of tenfold greater area and double the elevation, especially as our experience embraced but a comparatively small corner at the west end of the range.

The following paragraphs summarize our impressions of its physical features compared with those of San Cristobal; but the reader will please to note that these apply only to the particular part of the Sierra Nevada specified :—

(1) The precipitous and rugged parts are proportionately fewer "per area," but may often, as in the case of the terrific precipices that introduce the Monachil into the Vega of Granada, be on a very much larger scale.

(2) The geological formation differs, in that most of the first two thousand feet immediately above the Vega, consists of what seemed to us to be shale and clay or loëss, wretchedly poor and uninteresting in both plant and animal life.

(3) The succeeding zone, 4500–6500 ft., is much more like San Cristobal, rocks and boulders in fantastic profusion, fairly well clothed with scrub and bushes, and in some parts with pines (*Pinus pinaster*) and a few ilex trees.

(4) Above this zone, stretching upwards apparently to the Picacho de Veleta itself, lie miles and miles of moorland slopes, broken only at long intervals by

collections of crags or boulders, one of the largest of which—the Peñones de San Francisco—at 8500 ft. formed the furthest point of our explorations.

Replace the short esparto grass by coarse bents, and the occasional starveling growth of flattened juniper bushes by bog-myrtle, and these upland stretches might almost be mistaken for parts of the higher moorlands of North Wales.

For brevity of reference, these three zones will hereafter be termed the lower, middle, and upper zones respectively.

The periods of our visit to the two sierras were as follows:—

San Cristobal.—21st to 26th March and 22nd to 26th April.

Sierra Nevada.—28th April to 3rd May, during which time snow still covered north-facing slopes from seven, and south-facing slopes from eight thousand feet upwards, while down to six thousand feet vegetation and soil alike shewed unmistakable evidences of their recent release from winter's mantle.

It is perhaps needless to say that in such flying visits much must have escaped our notice, or that observations made in one small corner of a great expanse of mountain-ranges like the Sierra Nevada do not necessarily hold good all over its area; on the contrary, it was very evident to us that there is still much to be learnt in both regions concerning their birds.

Speaking in general terms, each sierra, though in the main similar, seemed to have much ornithological character of its own.

The Sierra Nevada, in the wild expanses of its upper zone, maintained as breeding species the Alpine Accentor, and apparently also the Skylark, Common Wheatear and others that require for the purposes of reproduction a more temperate climate than San Cristobal's lesser altitude can offer, but apart from this the latter certainly gave us the impression of being far the richer in bird-life; most of what was to be seen in a long day's exploration in our part of the Sierra Nevada would probably have been seen in a few hours on San Cristobal. This is, moreover, quite in keeping with what has already been said about the comparative scale of the two districts.

It was also remarkable that in the Sierra Nevada, the corresponding bird- and plant-life seemed to be reproduced at an additional 1500 or 2000 ft. elevation ; thus it was not until the middle zone was reached that San Cristobal's 3000 ft. life became general.

Some aspects of the ornithology of these sierras, which though not new, gain much in interest by coming under personal observation, and provide matter for reflection on general subjects, such as geographical distribution, &c., are :—

(1) The ready adaptation to the climates of altitudes up to 4000 ft. or more of such species as the Dartford Warbler, Woodlark, Hoopoe, and others, which also breed at sea-level comparatively close to the base of the sierras provided the environment, and presumably food, are suitable to their requirements for reproduction, although in many parts of the intervening zones there may be no such suitable environment.

(2) The presence and (apparent) breeding of such species as the Common Wheatear and Skylark at high altitudes which furnish them with a climate resembling that which other individuals, of the same species, find at sea-level thousands of miles further north.

(3) The little use that migrating birds seem to make of the sierras as a resting-place during their passage ; for instance Chats, Warblers, and Flycatchers of many species passed abundantly through the foothills and lowlands of the Province of Jerez during March and April but were almost entirely absent from San Cristobal, and yet the latter must lie in the direct route of many of the birds. It is presumably the altitude that is objected to, if not for flighting, certainly for alighting purposes.

A few words as to ways and means for the benefit of those who would make further investigations in these parts. In the Sierra Nevada explorations of any magnitude cannot be undertaken without considerable preparation and forethought: its chief ornithological treasures lie remote from roads and even the smallest "ventorillos." Our own researches were carried out from a substantial farm-house at 6000 ft., accommodation in which we owe to the kind introduction of the late Mr. Davenhill, H.B.M.'s Vice-Consul at Granada.

With San Cristobal, however, it is quite a different thing. A few hours by rail and plentifully supplied with hotels and fondas, Ronda is the most convenient starting-point. Here mules can be hired for the transport of baggage, and the "caballero" himself can either walk or ride the 15 miles of charming and varied country to the village of Grazalema, which lies at the base of San Cristobal itself. Grazalema has a capital little "posada," from which daily expeditions about the sierra can be made, or if one is prepared to rough it in a mild way, remembering that the nights even at the end of April are often bitterly cold, a camp can be established, preferably among the pinsapos. There are plenty of springs of water alive at this time of the year. Such an expedition is well within the scope of a few weeks' absence from England or a single week from Gibraltar, and apart from the mere pleasure of the outing, is one which can scarcely fail to prove satisfactory to the ornithologist. The cost will be little more than the travelling expenses, for at Grazalema one lives for a few pesetas a day.

In the following list the nomenclature is given according to the "Rules of the International Commission on Zoological Nomenclature." It has been thought best to treat the birds of which no specimens were brought home binomially, as the subspecies to which they may have belonged cannot be definitely ascertained without specimens. It was not found possible to collect specimens of many of the "resident" birds and this was still more unfortunate, since many of the Spanish "residents" are little known in collections. Species of which examples were obtained are marked with an asterisk *; these have kindly been identified by Mr. H. F. Witherby, to whom, as well as to Mr. Abel Chapman, the writer's best thanks are due for help in the preparation of this paper.

Altitudes are "above sea-level" and approximate; the majority were taken with a pocket aneroid.

CORVUS CORAX. Raven.

San Cristobal.—We were rather surprised not to meet with the Raven at all in San Cristobal, since the species was plentiful in the foothills and lowlands.

Sierra Nevada.—One or two Ravens were seen on the wing at 4500 ft., but none higher.

GARRULUS GLANDARIUS. Jay.

San Cristobal.—The Jay was met with in the lower pinsapo region, where those trees were interspersed with ilex, but the bird was much more plentiful in the cork woods of the foothills.

*PYRRHOCORAX PYRRHOCORAX (L.), nec auct. Chough.

San Cristobal.—The Red-billed Chough was plentiful and breeding in suitable precipitous crags from the base of the mountain up to 4000 ft. Nuptial flights, the birds shooting downwards at a prodigious pace with wings almost closed, were being carried out during the last week of March, while a month later, nests in inaccessible holes and crevices probably contained fresh eggs, judging from the frequent noisy coming and going of the owners without food or nesting materials.

Sierra Nevada.—Here again the Red-billed Chough was the only kind observed. Flocks occurred up to quite 7000 ft., and may very likely have had a home at that altitude in the Genil valley, but the only nesting-colonies seen were considerably lower down in the precipices at the embouchure of the Monachil.

Chloris chloris. Greenfinch.

San Cristobal.—A trilling note, almost certainly that of the Greenfinch, was often heard in the pinsapal in March. Its author systematically eluded observation, and we did not hear the note during our April visit.

Sierra Nevada.—Not observed in the Sierra, but evidently breeding in the gardens at Granada.

Carduelis carduelis. Goldfinch.

San Cristobal.—The Goldfinch was observed much higher than the base of the mountain.

Sierra Nevada.—Plentiful in the bush-country of the middle zone.

Carduelis cannabina. Linnet.

San Cristobal.—A few Linnets bred in the foothills and lowlands, but the species was not observed on the mountain.

Sierra Nevada.—Plentiful and evidently breeding in the bush-country of the middle zone, where males were singing during our visit.

* Serinus canarius serinus (L.). Serin.

San Cristobal.—The Serin was observed much higher than the base of the mountain.

Sierra Nevada.—Plentiful in the bush-country of the middle zone.

Fringilla cœlebs. Chaffinch.

San Cristobal.—The Chaffinch, although abundant in the woodlands of the foothills, was only observed near the base of the mountain.

Sierra Nevada.—Fairly plentiful, singing and presumably breeding up to quite 6000 ft. Numbers were feeding in company with Linnets and Rock-Sparrows on the ploughs and fallows at 7000 ft., at which altitude the melting of the snow had just given sufficient time for the ground to be brought under cultivation.

We saw nothing of the Snow-Finch—the Peñones was our highest altitude.

* PETRONIA PETRONIA (L.). Rock-Sparrow.

San Cristobal.—A colony of Rock-Sparrows was established alongside a large "Choughery" at 2500 ft., and nest-building was in progress there on April 26th. The species was not found anywhere else in the Serrania de Ronda.

Sierra Nevada.—A few were nesting in the pot-holes in the face of a perpendicular crag, overhanging the Monachil at 6000 ft. During the ascent to the "Peñones" on May 1st, numbers of Rock-Sparrows were seen feeding on the ploughs and fallows at 7000 ft., and on being disturbed they made a short flight and re-alighted, uttering Lark-like cries. One or two examples were seen not far above Granada, but apparently only out foraging.

PASSER DOMESTICUS. House-Sparrow.

Our observations on the House-Sparrow were incomplete. The Spanish Sparrow was not seen at all.

EMBERIZA CALANDRA. Corn-Bunting.

The Corn-Bunting was not met with out of the lowlands.

EMBERIZA CIRLUS. Cirl Bunting.

San Cristobal.—The Cirl Bunting was breeding up to 3500 ft. on the mountain, but the foothills were evidently its principal habitat.

Sierra Nevada.—Several pairs were evidently breeding in scrub-clad parts of the middle zone.

* EMBERIZA HORTULANA. Ortolan Bunting.

San Cristobal.—The Ortolan was not observed. Possibly we left just before the date of its arrival.

Sierra Nevada.—A few were seen, just above the tree-limit at 7000 ft. on May 1st; a male which was singing alongside its mate, had the testes half size only.

* EMBERIZA CIA. Rock-Bunting.

San Cristobal.—The Rock-Bunting (which name seems so much more suitable than the "Meadow-Bunting" of some authors) was breeding in some numbers at the end of

April, on the barer and more stony slopes between 2500 and 3500 ft., a somewhat narrow zone. Unlike the Cirl, the Rock-Bunting was never seen in the "foothills."

Sierra Nevada.—Plentiful and evidently breeding in the middle zone, as well as on the very steep stony slopes near the embouchure of the Monachil.

Speaking in general terms, this species might be described as a bird of the middle and more stony slopes of these Sierras, where the scrub is comparatively short and scanty, the latter considerations being of greater importance than the altitude; while the Cirl Bunting inhabits the richer scrub and bush-country ("monte") of the foothills, but also extends to considerable altitudes in the sierras, where the environment is suitable.

*CALANDRELLA BRACHYDACTYLA BRACHYDACTYLA (Leisl.). Short-toed Lark.

On April 28th a party of ten birds was seen on the slopes near the base of the lower zone of the Sierra Nevada, but the Short-toed Lark is essentially a species of the lowlands.

These individuals may have been late arrivals from the south, but it is in keeping with the impression that we received of this zone, viz., that so far as bird-life and environment were concerned, the "Sierra" did not really begin until the "middle zone" was reached.

[I may here refer to a specimen of *Calandrella minor apetzii* (=*bætica,* see Vög. pal F. (i. p. xxv. footnote 2)) in juvenile plumage, procured on May 15th, 1910, in the Coto Doñana. In comparing this with a specimen of *Calandrella brachydactyla brachydactyla* in similar plumage, also collected by Lynes at Algeciras, Spain, on July 15th, 1906, I note the following differences:—The *C. m. apetzii* is dark brown on the upper parts, not yellowish-brown as in the *C. b. brachydactyla*, and the feathers have white, not yellowish, tips, and these tips form a more even fringe, and not a series of spots as in the juvenile *C. b. brachydactyla.* The whole of the under parts are heavily spotted with sooty-brown, whereas in the *C. b. brachydactyla* only the breast is spotted, the throat and belly being white. These differences are of some importance for identification, because in the juvenile *C. b. brachydactyla* the secondaries, although apparently fully grown, are considerably shorter than the primaries, as they are in members of the *minor* group, whereas in adult *brachydactyla* they are as long as the primaries.—*H. F. W.*]

* GALERIDA THECKLÆ THECKLÆ Brehm. } Crested Larks.
* GALERIDA CRISTATA PALLIDA Brehm. }

San Cristobal.—A few Crested Larks were breeding on esparto-grass slopes and plateaux of the mountain up to 4000 ft., at which elevation a female shot on April 24th was in the middle of her egg-laying. In the Coto Doñana the species was very scarce, but everywhere between that place and San Cristobal, especially in the undulations of the lowlands, abundant.

Twelve specimens from localities representative of the whole of this distribution shew a certain amount of variation in colour, nevertheless they all undoubtedly belong to the "*thecklæ*" group.

We have a suspicion that in the plains round Jerez there are a few *G. cristata*, more sandy-coloured birds than any of the above and, in marked contrast to the latter, so wild that we could never shoot one to settle the question.

It may be mentioned that near Hervas, in Estremadura, we procured both *G. thecklæ* and *G. cristata* alongside one another, and, moreover, the latter was sufficiently distinctive in appearance to cause us to dismount on purpose to obtain what was obviously a different bird to *G. thecklæ*, of which we had just shot four specimens.

A point of interest, which others may perhaps have noticed in the Crested Lark, is the frequency with which during the breeding-season three birds are seen together. Earlier in the year, when courting is in progress, there would of course be nothing remarkable about such an occurrence, but we rather think the Crested Lark may be inclined to irregularity in its mating, a suggestion in support of which may be recorded in the finding of a nest with eight eggs on May 7th. Five of these were blotched and about four days set, while three were spotted and about six days set, so that they had obviously been laid by different birds. The sitting female, which was shot as she left the nest, had no more fertile eggs in her ovary. Unfortunately, lack of time prevented further investigation of this interesting case.

Sierra Nevada.—Seen up to 4500 ft., but no higher; apparently all *G. theklæ*, but no specimens were obtained.

[I have made a careful examination of the series of specimens of *G. t. theklæ* collected, and find that the differences in colouring (which are slight) can only be attributed to individual variation. One bird, obtained on June 9th, 1910, near Granadilla, Estremadura, is particularly brown, especially when compared with three greyish-black birds from the Coto Doñana; two others from Estremadura are brownish, but others are much like the Coto Doñana birds; from near Jerez there are both greyish-black and brownish specimens, and the same may be said of those from near Chipepe. The specimen mentioned above as belonging to the "*cristata*" group from Hervas, Estremadura, is an example of *Galerida cristata pallida.*—*H. F. W.*]

LULLULA ARBOREA. Woodlark.

San Cristobal.—The Woodlark impressed us with its mixed ideas as regards "habitat"; a fair number bred in wooded parts of the Coto Doñana at sea-level (young hatched May 4th), many in the woods of the foothills and lower zone of the mountain, while others frequented some bare esparto-grass patches at 4000 ft., where they were courting at the end of March, and evidently had eggs or young in the nest on April 23rd.

The last locality had probably been denuded of its scrub and trees at no very remote date, and the apparent inconsistency of these individuals in nesting in so exposed a place may be but an instance of hereditary attachment to old nesting-sites of former scrub- and tree-clad days, such as are mentioned in "Yarrell" in the case of the Stone-Curlew, where those birds still continued to breed in spite of their old haunts having been transformed into plantations.

Sierra Nevada.—A pair of fledged young were out of the nest at 4000 ft., on April 28th, and the species was also breeding here and there (males still singing on May 3rd) in the middle zone, chiefly in the vicinity of small ilex trees and dwarf oak.

ALAUDA ARVENSIS. Skylark.

San Cristobal.—The Skylark was not observed. Migrants and winter visitors seen in the lowlands during April had all departed by the middle of the month.

Sierra Nevada.—Very much as in the case of the Common Wheatear, Skylarks were met with as low as 4500 ft., where they behaved as if on passage; but on the pastures and slopes above 6000 ft., and especially on the esparto-grass stretches between 6500 and 7500 ft., from which the snow had but recently melted, there was every indication that many intended to breed. Some were in full song high in air, others only in partial song, while many were obviously paired, with sexual organs largely developed, shewing that laying might be expected to commence about mid-May.

*ANTHUS CAMPESTRIS CAMPESTRIS (L.). Tawny Pipit.

San Cristobal.—The Tawny Pipit, whose first appearance for the year seemed to be about April 7th in the lowlands, was established for breeding in moderate numbers on the stony slopes and esparto-grass plateaux up to 4500 ft. A male (paired) shot on April 24th had the sexual organs half size only.

Sierra Nevada.—Plentiful on the stony sarsaparilla-clad slopes of the "lower zone": on April 28th and 29th males were singing while descending in aerial spirals exactly after the manner of the Tree-Pipit, and nesting was evidently in progress.

A few individuals probably breed in the lowlands, as occasional examples were seen in the low hills bordering the plains near Jerez on May 30th and June 2nd.

[Two males collected on April 13th and 15th have both evidently just completed their moult, but whereas one appears to have the two central tail-feathers new and also perhaps some secondaries, the other has these feathers much worn.—*H. F. W.*]

ANTHUS PRATENSIS. Meadow-Pipit.

ANTHUS TRIVIALIS. Tree-Pipit.

Neither Meadow- nor Tree-Pipits were met with in the Sierras. Our visits were probably too late to expect the former, as Mediterranean winterers make an early move north, and the latter was only observed on passage through the lowlands during the first half of April.

MOTACILLA BOARULA. Grey Wagtail.

San Cristobal.—On March 22nd a single male in almost complete summer plumage was seen at the base of the mountain. This may have been a breeding bird, but during the summer the upper waters cannot be sufficient for breeding purposes.

[N.B.—I found two nests in the Sierra de Jerez (about 3000 ft.) on April 19th and 22nd in a former year.—*A. C.*]

Sierra Nevada.—In the valleys of the Monachil and its tributary burns in the "middle zone" the Grey Wagtail was quite plentiful. Nests were found building and nearly ready for eggs.

*CERTHIA BRACHYDACTYLA ULTRAMONTANA Hart. Tree-Creeper.

San Cristobal.—The Tree-Creeper was plentiful among the pinsapos, where a pair were seen completing their nest in a very rotten tree at 4800 ft. It was also met with in the cork woods of the foothills, but was unknown in the Coto Doñana.

[A female specimen procured at San Cristobal on April 29th, 1910, compares well with the type of this form.—*H. F. W.*]

Sierra Nevada.—Not met with and not likely to exist in our district, the tree-growth being either too small or too young.

PARUS MAJOR. Great Titmouse.

The Great Tit was met with from sea-level to well up San Cristobal and up to over 6000 ft. in the Sierra Nevada, equally at home throughout this great range in altitude.

* PARUS CÆRULEUS. Blue Titmouse.

Our notes on the Blue Tit are somewhat incomplete. In San Cristobal the species did not seem to frequent the pinsapo forest, but was plentiful in the woods on the lower slopes of the mountain and among the foothills. In the Sierra Nevada it was plentiful in the middle zone.

[One specimen (female, May 2nd, 1910, Sierra Nevada) was brought home. This example is in much-worn plumage. The mantle is brownish-grey, not so green as an equally-worn specimen of *P. c. obscurus*, but the rump is green like that of *P. c. obscurus*. The under parts are of a brighter yellow than those of *P. c. obscurus*, and more like those of *P. c. cæruleus*, but the specimen is too much worn for proper comparison.—*H. F. W.*]

* PARUS ATER VIEIRÆ Nicholson. Peninsula Coal-Tit.

Parus vieiræ Nicholson, Mem. & Proc. Manchester Lit. & Phil. Soc. l. iii. No. 13, p. 16 (1906—Portugal).

San Cristobal.—The Coal-Tit was plentiful and apparently strictly limited to the pinsapo forest. A pair obtained on April 23rd had the sexual organs but slightly advanced. At this date they were always seen in twos (presumably pairs), but nesting did not seem to have commenced. On April 25th, as we sat among the higher pinsapos at 4800 ft., a pair came up to look at us, one very noisy, the other with inquisitive concern hopping down an outstretched bough to within a few feet of us. We searched high and low for a nest, without success; probably there was not one, for the birds, unmolested, took themselves off when their curiosity was satisfied.

For the most part the birds were busily engaged in prising off the tender red buds of the pinsapo in search of insects.

Sierra Nevada.—In the pine trees of the middle zone the species seemed plentiful; the sexual organs of a male shot from a pair on April 30th indicated that nesting was only in the preparatory stages.

[Two males and one female were collected at San Cristobal in April, and one male in the same month in the Sierra Nevada. These specimens are intermediate between *P. a. ater* and *P. a. britannicus.* The colouring of the mantle is not so pure a grey as in *P. a. ater*, nor so olive as in *P. a. britannicus,* but the rump is decidedly olive-brown as in the latter, and the flanks and axillaries are more golden-buff than in the typical form, and thus like those of *P. a. britannicus.* The wings measure: ♂♂♂, 61, 63, 65; ♀, 62 mm.; they are quite as long as in *P. a. ater*, and longer than in *P. a. britannicus.* The bills equal those of *P. a. ater,* which are usually longer than in *P. a. britannicus.* The single specimen upon which Mr. Nicholson based his "*vieiræ*" was no doubt an aberrant example.—*H. F. W.*]

*Ægithalus caudatus irbii (Sharpe & Dresser). Spanish Long-tailed Tit.

The Spanish Long-tailed Tit was met with in the foothills, and was very likely overlooked in the woods on the lower slopes of San Cristobal, which appeared quite suitable for it.

This species was not seen in the Sierra Nevada.

*Regulus ignicapillus ignicapillus (Temm.). Fire-crest.

San Cristobal.—The Fire-crest was seen up to 4500 ft. in the pinsapo forest, as well as among the woods of the foothills. None were observed in the Sierra Nevada.

Lanius senator. Woodchat Shrike.

We were surprised to see a Woodchat in some ilex trees at 6500 ft. in the Sierra Nevada on April 30th, but the species is of course ordinarily a bird of much lower altitudes.

Muscicapa hypoleuca. Pied Flycatcher.

San Cristobal.—A single male Pied Flycatcher on migration was obtained in the pinsapal at 4800 ft. on April 23rd; testes still quite small.

Sierra Nevada.—A single male was seen in a retired corner of the Monachil valley at 5000 ft., also evidently migrating.

The normal passage, *via* the lowlands, took place between early April and the end of May.

* PHYLLOSCOPUS TROCHILUS TROCHILUS (L.). Willow-Warbler.

PHYLLOSCOPUS COLLYBITA. Chiffchaff.

Neither the Willow-Warbler nor Chiffchaff in their respective seasons seemed to frequent altitudes greater than 2500 ft.

* PHYLLOSCOPUS BONELLII BONELLII (Vieill.). Bonelli's Warbler.

San Cristobal.—A Bonelli's Warbler was seen in a bleak spot at 4000 ft. on April 23rd, evidently on passage; we were probably too early to make observations as to breeding.

Sierra Nevada.—On April 29th, at 5000 ft., a male with testes of half-size was shot, and on May 3rd the song proclaimed that the species would probably breed in the bush and pine-tree parts of the "middle zone."

CETTIA CETTII. Cetti's Warbler.

On 22nd March we were surprised to hear the strident babble of a Cetti's Warbler in an oleander thicket at 1500 ft., at the base of San Cristobal. Otherwise we only met with the species in the lowlands, where it breeds plentifully, if somewhat locally.

* HYPOLAIS POLYGLOTTA (Vieill.). Melodious Warbler.

HYPOLAIS PALLIDA OPACA Cab. Olivaceous Warbler.

Neither the Melodious nor Olivaceous Warblers, both species abundant summer visitors to the lowlands, were observed in the Sierras.

SYLVIA BORIN. Garden Warbler.

SYLVIA HORTENSIS, nec auct. Orphean Warbler.

Both the Garden and Orphean Warbler were only met with in the lowlands, the former apparently as a migrant only, passing between mid-March and mid-May, though a single male singing on May 7th may have been a breeding bird : the latter as a summer visitor.

SYLVIA ATRICAPILLA. Blackcap.

Like the Sardinian Warbler, though differing in being mainly a summer visitor, the Blackcap does not affect the Sierras. We found it breeding up to the extreme base of both Sierras, but no higher. Great numbers northward bound also passed through the lowlands during March, males and females at the same time, but as a rule the parties were composed of one sex only.

SYLVIA COMMUNIS. Common Whitethroat.

Andalucia is presumably one of the Whitethroat's most southerly breeding habitats, so that one would hardly expect to find the species nesting in any quantity. A pair seen on April 22nd, and again at the same place on the 26th, by their actions were certainly breeding at the base of San Cristobal (2500 ft.), as were two examples seen in the Sierra Nevada at 4500 ft. and 6000 ft. respectively.

In the lowlands a few birds, probably also breeding, were seen in May. Many had passed through on migration during the first three weeks of April.

SYLVIA MELANOCEPHALA. Sardinian Warbler.

The Sardinian Warbler is not really a Sierran bird ; on San Cristobal 3000 ft. was the highest range noted, and the species was not met with at all in the Sierra Nevada.

*SYLVIA CANTILLANS CANTILLANS (Pall.). Subalpine Warbler.

The Subalpine Warbler was not met with in the Sierras, and was scarce even in the lowlands, which seems curious, since it is quite a plentiful breeding species near Huelva and the lower Guadiana.

SYLVIA CONSPICILLATA. Spectacled Warbler.

In the Sierras, as in the lower ground, the Spectacled Warbler is a very local bird; for instance, there were three different pairs breeding (apparently with young on April 24th) in a fifty-acre patch of undulating stony soil, scantily clothed with scrub, at 3000 ft. on San Cristobal, and these, with one exception, were the only representatives of the species seen by us during the whole season.

SYLVIA UNDATA. Dartford Warbler.

The Dartford Warbler in Andalucia, as well as in other parts of the Mediterranean area, seems to affect almost exclusively that loose (as opposed to dense) growth of gorse, *Cistus*, "Cantueso"* and other small shrubs which one soon gets to recognise as being a favourite haunt of most of the small warblers in those parts, and in the case of the present species with a somewhat remarkable disregard of altitude. From 4500 ft. on San Cristobal down to the Coto Doñana at sea-level, we found the species breeding where the proper sort of "ground" existed. We did not note the species in the Sierra Nevada.

AGROBATES GALACTOTES. Rufous Warbler.

We were too early for the Rufous Warbler at San Cristobal; but during our stay in the Sierra Nevada (April 28th–May 3rd) it began to arrive. On May 3rd a male was singing in the bush and pine-tree district of the middle zone.

TURDUS VISCIVORUS. Mistle-Thrush.

San Cristobal.—The Mistle-Thrush was not met with, but several were seen in the cork and ilex woods of the "foot-hills" just below.

Sierra Nevada.—One or two were seen among some scattered ilex trees at 7000 ft., near the limit of tree-growth.

The species evidently breeds in both the above localities.

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* [Cantueso is a kind of wild thyme: quite tall.—*A. C.*]

TURDUS PHILOMELUS. Song-Thrush.

Turdus musicus auct.

The Song-Thrush was not observed in either Sierra. The last note of the species heard in Andalucia was on April 19th, but this was in the lowlands "foothills."

TURDUS TORQUATUS. Ring-Ouzel.

San Cristobal.—A female Ring-Ouzel was seen at 4000 ft. on March 24th, and a male flew by "clucking" not far from the same place, but 800 ft. higher, on April 23rd. Breeding seemed doubtful, although the latter date suggests it.

Sierra Nevada.—On May 1st and 2nd a very wild bird was seen among dwarf juniper recently emerged from the snow at 8000 ft. Here again the lateness of the date suggests breeding, but we have no direct evidence of it.

[If these were breeding birds they would belong to the Alpine race, *Turdus torquatus alpestris* (Brehm).—*H. F. W.*]

TURDUS MERULA. Blackbird.

San Cristobal.—Blackbirds were quite plentiful up to the top of the pinsapo forest. Unfortunately no specimens were obtained, but our impression was that the hen birds of the upper regions lacked the very conspicuous russet hue of those in the "foothills" and "lowlands," and may perhaps be found to belong to a different race. Here is a interesting point for further investigation.

Sierra Nevada.—Not observed above Granada and the Vega; but the species may have been overlooked in the middle zone, where the bush and pine-tree country seemed very suitable.

[The Spanish Blackbird has been described as *Turdus merula hispaniæ* by Kleinschmidt ('Falco,' 1909, p. 22), being separated on account of its shorter wing and longer tail, but hardly enough material seems to have been examined. Two specimens collected by Mr. W. C. Tait in Portugal in May 1911, and kindly given by him to me, are short in the wings but the tails are not long. They measure:—♂. Oporto: wing 123 mm., tail 103 mm.; ♀. Caldas de Gerez: wing 120 mm., tail 97 mm. The female is not so rufous on the under parts as the typical bird, nor so slate-brown as the Algerian form, *T. m. algirus* (Mad.).—*H. F. W.*]

* MONTICOLA SAXATILIS (L.). Rock-Thrush.

San Cristobal.—This migratory species had not arrived during our first visit in March; but in April Rock-Thrushes were plentiful, frequenting almost exclusively the rocky stacks from 4000 ft. upwards, where they were obviously about to breed. On April 24th a male was courting, strutting about a flat-topped rock, fluttering his drooping wings in front of a female. At this season the sweet, clear song, uttered either from a stance or whilst in descent describing aerial circles with outspread wings and tail, contributes in no small measure to the charm of the upper regions. On April 25th a pair were shot whose sexual organs indicated that laying might be expected in two or three weeks time, not earlier.

Sierra Nevada.—Plentiful about the rock-stacks of the middle zone, but not present at the very suitable-looking Peñones de San Francisco (8500 ft.), where snow lay in patches on May 1st and 2nd.

The sexual organs of a male shot on May 1st shewed that laying would not take place before the latter part of that month.

[In a previous year I had found a nest with five eggs on May 18th, confirming Lynes's observation as above.—*A. C.*]

MONTICOLA SOLITARIUS. Blue Rock-Thrush.

San Cristobal.—Our experience of the (resident) Blue Rock-Thrush was that it kept apart from its more brilliant congener, its chief haunts being the crags and precipices below 3500 ft., while it occurred not only on San Cristobal itself, but in the foothills, where *M. saxatilis* was never seen.

Like most of the resident birds, it is an early breeder; half-built nests were found in March.

Sierra Nevada.—Almost abundant among the stupendous precipices at 4000 to 2500 ft., through which the Monachil descends to the Vega. Comparatively few of these birds ascend to the higher regions; a male, however, used to sing constantly to his (probably) sitting mate close to our "Cortijo" at 6000 ft. In song and courting this species resembles *M. saxatilis*, and we have also observed the "solitario" singing, with that loose-jointed "butterfly" flight characteristic of *Sylvia* at courting time.

* ŒNANTHE ŒNANTHE. Wheatear.

San Cristobal.—In our March visit a few Common Wheatears, obviously migrants, were seen on bare grass patches at 4000 ft., but none were observed in April; the elevation and lack of moorland in this Serrania are evidently unsuitable to breeding requirements.

Sierra Nevada.—Wheatears, males predominating, were plentiful in suitable places from 4000 ft. up to the snow-limit; but whereas the birds seen below the upper zone were evidently merely passing migrants—parties seen one day and gone the next—those spread out over the upland slopes between 6000 and 8000 ft. by many indications gave the impression of preparing to nest there.

On the 29th of April the large majority of these were males, but by the 2nd of May a number of females had arrived and were being courted both in song and gesture by the males.

It seemed as if the males, having arrived in advance, had selected their respective territories as soon as they were free of snow, and were now in the process of choosing their partners.

It is worthy of note that a few of the males were in a plumage somewhat resembling that of the autumn. One such specimen, obtained on April 29th, had the testes partially enlarged, but less so than in a full-plumaged male shot the same day.

[Three skins (males, Sierra Nevada, April 29th and 30th, 1910) brought home are very interesting: and it is most unfortunate that it cannot be proved that these birds were actually nesting in the Sierra Nevada, although all Lynes's observations point to the fact that they were breeding birds The foreheads of these specimens have more white than in adult typical birds in summer, and their under parts are of a much purer white; their bills are also large, measuring from the nostril to the tip 10, 10, and 11 mm., and from the base to the tip 18, 18, and 19½ mm.; the wings measure 91, 95, and 99 mm. These birds are thus somewhat like those described as *Œ. œ. rostrata* Hempr. & Ehr.

The Common Wheatear has, I believe, never been known to breed in the Peninsula south of the Cantabrian Mountains, and has not before been suspected of breeding in the south of Spain.

The male mentioned as being in a plumage somewhat resembling that of the autumn is in first summer plumage, very distinct from that of the adult. For full descriptions of the various plumages of the Wheatear, see C. B. Ticehurst, Brit. Birds, iii. pp. 391–3.—*H. F. W.*]

*ŒNANTHE HISPANICA HISPANICA (L.). Black-eared Wheatear.

The Black-throated and Black-eared Wheatears were plentiful up to 3000 ft. in both Sierras—in Nevada a sprinkling as high even as 7000 ft.; but their principal habitats were among the lowlands and foothills. Everywhere between Jerez and the Sierra Nevada we found the two species (*pace* Dr. Hartert) remarkably evenly distributed, so that in a day's walk it was a common thing to see each alternately. Nevertheless, and in spite of always being on the look-out for it, we found no evidence contributing to the consideration of the two forms as dimorphisms of the same species. On the contrary, there seemed no more connection between the two species than between, say, Meadow- and Tree-Pipits or Willow- and Wood-Warblers in the parts of our own country where those species intermingle freely.

It is also of note that in Estremadura, on the plains round Trujillo, there was a similar alternation of the two species: but further west, in the hill-country traversed by the River Alagon, there seemed to be only about one Black-eared to ten Black-throated, while in similar country still further west, viz. the last twenty-five miles of the Guadiana River, Mr. Ratcliff and I, during April and May 1905, found the Black-throated nesting quite plentifully, but never saw a single Black-eared.

A few males of both species in a brown autumn-like plumage were observed during April. The sexual organs of a Black-throated in such a dress, shot at 6000 ft. in the Sierra Nevada on May 1st, and apparently in company with a full-plumaged male of the same species and his mate, were by no means in breeding condition, although the nesting-season of the species was well advanced.

The 1st of May was the latest date that birds in this brown plumage were noted: and I have observed a similar early spring appearance and disappearance of such birds in other parts of the Mediterranean area. Is it possible that these individuals are merely abnormally late in getting into full summer plumage, and on that account will not rear a breed that season?

[Three pairs brought home are very interesting, because Lynes took the utmost pains to make certain that they were actually paired birds. The males are all of the black-throated form. One female has a distinctly blackish throat. Both the other females have black bases to the feathers of the throat, and where the tips of these feathers are worn the black shews through. It may here be remarked that the white-throated form of the male (*i. e.*, the Black-eared Wheatear) sometimes has the feathers of the throat white to the base, and sometimes has them with black bases; and it may be added that the amount of black at the base varies individually. This fact seems a small argument in favour of regarding the two forms as dimorphisms. Lynes's observations are worthy of careful attention, but they do not seem to me to afford absolute proof either way.

Two specimens in the plumage which Lynes refers to as "autumn-like" are undoubtedly in first summer plumage, the difference between this and the adult summer plumage being comparable with the differences observed in the same plumages in the Common Wheatear.—*H. F. W.*]

* ŒNANTHE LEUCURA LEUCURA (Gm.). Black Wheatear.

San Cristobal.—The Black Wheatear was plentiful from about 2000 to 4000 ft., being especially partial to the crags and masses of detached boulders around Grazalema.

A few pairs were breeding in suitable places among the foothills down to 1000 feet.

Sierra Nevada.—Observed from the Vega up to 4000 ft. wherever the country was sufficiently rugged.

Note.—At Alicante and Cartagena the writer has found the Black Wheatear breeding in stony but otherwise quite "small" country, practically at sea-level, and, as we know, the species breeds on the Rock of Gibraltar; so that, as in the case of the Blue Rock-Thrush, it is evident that the selection of habitat is influenced by environment rather than by altitude.

* SAXICOLA TORQUATA RUBICOLA (L.). Stonechat.

San Cristobal.—The Stonechat was noted up to 3000 ft. (In the lowlands several broods were on the wing as early as the 31st of March.)

Sierra Nevada.—A sprinkling as high as 5500 ft., at which elevation one was flushed from a nest of four nearly fresh eggs on April 29th; probably a first laying, since a month earlier the site would have been under snow.

The Whinchat was only observed on passage through the "lowlands."

PHŒNICURUS PHŒNICURUS. Redstart.

Great numbers of Redstarts passed through the "lowlands" on migration between mid-March and the end of April; but the only individual seen in higher altitudes was a single bird at 4500 ft. in the Sierra Nevada on April 29th.

PHŒNICURUS OCHRURUS GIBRALTARIENSIS (Gm.). Black Redstart.

San Cristobal.—Without its Blackstarts, San Cristobal would lose much of the vivacity of its bird-life; in the words of 'Unexplored Spain,' "Blackstarts abounded as Titlarks on a Northumbrian moor."

During the last week of April many nests were found with fresh eggs, one to five in number, between 2700 and 5000 ft. Probably some of the few individuals which had spent the winter in the "lowlands" were responsible for two nests being built on March 23rd, for at this early date courting was the general order of the day. The numbers subsequently increased daily at the breeding zone, as suggested by the arrival of birds obviously on passage through the "foothills" during the preceding days. In breeding, the "Blackstart seemed very faithful to its altitude; many of the craggy tops among the foothills, which appeared to us suitable in every respect, did not hold a single Blackstart."

They rose very early in the morning, and would start singing before any of the other birds, except, perhaps, the Swallow, quite in the dark; it is a sweet Hedge-Sparrow-like song, interlarded with an occasional "scratchy" little warble, like shaking up a bag of cowries, and may be mistaken for the rustling of some creature close alongside.

It seemed that there were occasional males in a plumage intermediate between male and female, but whether these were actual breeders or only "hangers on" for the season, could not be discovered. A difficulty in determining this point was the abundance of the species, nests with eggs being found within a hundred yards of one another.

Sierra Nevada.—Where there were craggy bits the Blackstart was as plentiful as at San Cristobal, from 4000 ft. right up to the Peñones at 8500 ft., but chiefly in the middle zone, where several nests were found. A favourite site for the nest was on a ledge of rock, close to a small torrent, exactly like the spot usually chosen by the Grey Wagtail; indeed, in one instance, where both species were nesting a few yards apart, the sitting birds and eggs were the only signs of distinction.

[I venture to suggest that some male Blackstarts may not attain complete maturity in the first year.—*A. C.*]

Luscinia megarhyncha. The Nightingale.

Though plentiful in the lowlands and valleys of the foothills, the Nightingale is not a bird of the Sierras—yet a male singing in some willows in a sheltered gully in the Sierra Nevada at 4500 ft. indicated that higher altitudes may occasionally be occupied if the environment is suitable.

Dandalus rubecula. Redbreast.

San Cristobal.—The Redbreast was plentiful up to at least 3500 ft., wherever pinsapos and bushes grew, extending downwards to the base and throughout the foothills wherever cork-wood, bushes, and moisture were present.

Sierra Nevada.—Met with among pine-trees and bushes from 6000 ft. down to Granada, where a nest was being built in a garden wall on April 29th.

Prunella collaris. Alpine Accentor.

San Cristobal.—The Serrania evidently does not afford sufficient altitude for the Alpine Accentor's requirements.

Sierra Nevada.—It was not until we reached the Peñones de San Francisco, 8500 ft., half covered with snow on May 1st and 2nd, that the species was found.

Here were three or four individuals, seemingly not yet paired. One sang a sweet Accentor-like song, which changed with alarm to a raucous Sparrow-like chirping. At first, while we watched them with our field-glasses, they were quite tame, but after an unfortunate miss with a collecting-gun, they became very wild, and we were unable to obtain specimens.

Troglodytes troglodytes. Wren.

San Cristobal.—The Wren was found breeding plentifully in the "foothills" and in the woods of the lower slopes of the mountain, but did not seem to extend much above 3000 ft.

Sierra Nevada.—Here the species seemed to affect much higher altitudes, for we came across several right up among the mists and snow at 8000 ft., while a nest (unlined) was found at 5000 ft.

Cinclus cinclus. Dipper.

San Cristobal.—The Serrania de Ronda has probably no perennial streams of suitable size for Dippers. None were seen.

Sierra Nevada.—Plentiful in the upper waters of the Monachil from 6000 to 4000 ft., and doubtless to be found all the way down to the Vega. All the birds seen were adults, but scarcely any time was devoted to looking for nests or securing specimens—the latter no easy task with a collecting-gun, as the birds were very shy.

[It was unfortunate that no specimens from these mountains were obtained, for they are practically unknown in collections (*cf.* Hartert, Vög. pal. Faun. i. p. 790).—*H. F. W.*]

Chelidon rustica. Swallow.

We omitted to make notes on the distribution of the Swallow in the Sierras. The species was breeding in numbers in the village of Grazalema (2700 ft.) and in houses below that altitude, but we found none nesting among the crags as the writer has experienced on the lower Guadiana and in Sicily.

Hirundo urbica. Martin.

San Cristobal.—Breeding colonies of the House-Martin were frequent in caverns among the cliffs from about 3000 ft. downwards on the mountain, as well as in suitable places among the "foothills." Nests were building on April 9th, and by April 26th incubation had become general among the members of a colony whose nests, in wonderful profusion, studded the sloping roof of an inaccessible cavern.

Sierra Nevada.—Quantities were nesting in the precipices from 5500 ft. down to the embouchure of the Monachil.

*Riparia rupestris (Scop.). Crag-Martin.

San Cristobal.—The Crag-Martin we found in smaller colonies than, but in much the same places as the House-Martin, the two species being often alongside one another, in which case the former seemed to keep to itself, avoiding the House-Martins as much as space would allow; their actions gave one the impression that they were trying to get to a quiet corner, out of the hubbub.

Sierra Nevada.—Nesting plentifully in the precipices of the Monachil, while a single pair at the desolate Peñones de San Francisco (8500 ft.) had a nest in a cave only just ready for eggs on May 2nd. In neither Sierra were the numbers so great as those of the House-Martin, and nesting seemed to be quite a fortnight later.

APUS APUS. Swift.

San Cristobal.—Many Common Swifts were wheeling about the tops of an outlying spur at 1000 ft. in the forenoon of April 24th. These birds were evidently on migration. Others were seen in the Coto Doñana in the early morning of May 10th, travelling slowly northwards and apparently feeding on the way.

APUS MELBA. Alpine Swift.

San Cristobal.—On April 26th some eight Alpine Swifts were dashing about by the Grazalema "Choughery." There was no indication of breeding at that date—indeed, they had in all probability recently arrived, for the species had not been seen on San Cristobal during the preceding days, though some were seen at Ronda on the 22nd.

UPUPA EPOPS. Hoopoe.

The Hoopoe had an extensive range in altitude; it was found everywhere from sea-level to 4000 ft. on San Cristobal and up to 7000 ft. in the Sierra Nevada, breeding mostly in holes in trees at the lower and among rocks at the higher elevations.

*DRYOBATES MAJOR HISPANUS (Schlüter). Spanish Great Spotted Woodpecker.

Picus major hispanus Schlüter, Falco, iv. p. 11 (1908—Seville, in Spain).

San Cristobal.—The Great Spotted Woodpecker occurred in the pinsapal up to its highest limit, but the chief resort of the species on the mountain was lower down in the ilex zone; while the more elevated cork woods among the "foothills," such as those between Ronda and Grazalema, were, perhaps, as favourite a locality as any.

Sierra Nevada.—The timber in our district being unsuitable, the species could hardly have been expected, and was not seen.

[One specimen—a female from near San Cristobal—was obtained on March 22nd, 1910. This is much like English specimens, but the white spots on the secondaries, especially those on the outer webs, are markedly smaller than those in *D. m. major* or *D. m. anglicus*, while the crimson on the abdomen and under tail-coverts is very brilliant. The under parts are rust-coloured. The wing measures 133 mm., and the first primary is 1 mm. longer than the longest primary-coverts. The bill is short (19 mm. from nostril to tip), and is thin and tapering like that of *D. m. anglicus*, not so thick and blunt as that of *D. m. major.*—*H. F. W.*]

CUCULUS CANORUS. Cuckoo.

The Cuckoo was heard at 6000 ft. in the Sierra Nevada on April 30th and May 1st.

BUBO BUBO. Eagle-Owl.

An Eagle-Owl was heard calling in the evening of March 23rd at about 2800 ft. on San Cristobal, but the species does not seem to be a lover of great altitudes, as we never saw or found traces of it elsewhere in the Serrania de Ronda, except in the foothills, where it was not uncommon, and not at all in the Sierra Nevada.

FALCO PEREGRINUS. Peregrine.

The only Peregrine we observed in the Sierras was a single bird at the Peñones de San Francisco (8500 ft.) on May 1st.

Having spent several hours at this collection of crags, we can confidently say that it was not breeding there, and was probably engaged in hunting a pair of Red-legged Partridges which had passed with hurrying wings and disappeared in the mists a few moments earlier.

FALCO TINNUNCULUS. Kestrel.

FALCO NAUMANNI. Lesser Kestrel.

We agree with Col. Irby that certain identification of the Kestrel and Lesser Kestrel, whose distribution in these parts is much mixed, is only possible in the field at a very short range; but we felt pretty sure that a single Kestrel, seen at 7000 ft. in the Sierra Nevada on May 1st, was "*tinnunculus*," perhaps on passage*: and there were small breeding colonies of undoubted "*naumanni*" at the base of San Cristobal up to 3000 ft.; otherwise the two species were met with only at lower altitudes.

AQUILA CHRYSAËTUS. Golden Eagle.

San Cristobal.—Golden Eagles were frequently seen on the mountain, up to its summit, no doubt often the same individuals; but the species is evidently still plentiful in the higher Sierra to the exclusion of the only other rock-breeding Eagle of these parts, viz. Bonelli's Eagle, which we met with only in the foothills and lowlands.

Of the finding of a Golden Eagle's nest in a pinsapo-hung crag at 4000 ft., how the two eggs were deserted because of a futile attempt in the dusk to reach the eyrie by means of a rope, and how the eggs were eventually retrieved a month later, is described in 'Unexplored Spain.'

Sierra Nevada.—Quite a few were seen about the middle zone; in one instance a pair of Golden Eagles and a Lammergeier were soaring overhead together.

GYPS FULVUS. Griffon Vulture.

San Cristobal.—The Griffon Vulture appeared to resort for nesting-purposes to the lower, rather than to the upper, regions of the Serrania, breeding colonies of Griffons being numerous from 3000 ft. downwards. Throughout the foothills, and even in the lowlands, a good proportion of the well-marked crags were tenanted.

Although associated, as a result of their feeding-habits, with mankind, one does not generally find these great birds very familiar in their breeding-haunts; but at Arcos, a small town crowded on a wedge-shaped hill that stands out prominently among the "lowlands," there has existed from time unrecorded a large breeding colony of Griffons, the nests being in the perpendicular sides of the wedge. From the outermost houses, whose "parterres" are on the very edge of the cliff, there issues a frequent cascade of house-refuse, which, in its descent, flies past the very caves and ledges occupied by the Vultures. Not long ago a fellow-countryman who had spent a night at the Fonda complained that he had been kept awake by the "snoring of the Vultures."

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* Hobbies were migrating through the Coto Doñana in some numbers during the second and third weeks of May.

The nests themselves were inaccessible without a rope, but, had it been otherwise, they would probably have remained undisturbed. The average hatching-time in our season was the middle of March, although we found one almost fresh egg on April 9th, a date, of course, abnormally late.

Sierra Nevada.—A few Griffons were evidently breeding in the lower gorges of the Monachil (3500 ft.), but we never saw them higher *.

After the Serrania de Ronda, Nevada seemed to us almost "Vultureless."

NEOPHRON PERCNOPTERUS. Egyptian Vulture.

San Cristobal.—The Neophron seemed to arrive in the "lowlands" near Jerez about March 19th †, on which date some twenty birds were seen sitting on ploughed land lying among groves of scattered ilex-trees. The foregoing remarks on the breeding distribution of the Griffon apply equally to this species: nearly all the colonies of the former species had a few pairs of the Neophron hanging about their outskirts, but the latter's less gregarious propensities (seldom more than three or four pairs being near one another and as often as not only one) enables it to take advantage of quite small "tajos," containing perhaps only one possible ledge or hole. This, too, will account for the Neophron breeding in greater abundance in the lowlands.

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* [A single Griffon passed over me at 6500 or 7000 ft., evidently travelling; a few minutes later a Lammergeier followed on the same course.—A. C.]

† [In other years I have noticed the Neophron in the "lowlands" (Coto Doñana) as early as *February 28th*.—A. C.]

Sierra Nevada.—The only two seen during our visit were at 4000 ft. The Black Vulture was never met with in either Sierra.

Gypaëtus barbatus. Lammergeier.

San Cristobal.—To observe the Lammergeier in its breeding-haunts was one of the chief objects of our visit to San Cristobal. Both in March and April we several times observed a single bird, and on March 25th saw one, through glasses at long range, enter a side-face in a precipitous, but not very large, cliff in one of the outlying spurs of the mountain (1600 ft.). On reaching the cliff, we found that the bird had left unobserved during our scramble up the very steep, broken hillside. From the tip of a projecting spur, a little above it, we could see into the nest, which was in a small cave only just sufficiently high for such a bird to stand upright at the entrance; there was a dirty platform of wool intermixed with sticks and a bone or two, but it was empty.

On April 24th we revisited the place and saw the Lammergeier several times, but the nest remained empty, and we were unable either to find an occupied nest near it, or to account for its emptiness by the suggestion that it had been robbed; since, although the "tajo" was only 60 ft. high and the nest only 20 ft. from the top and facing sideways to the general line of cliff, the nest was quite inaccessible without a rope.

This nesting site confirms the experience of others—that the Lammergeier dislikes company. No place in that neighbourhood could have been more remote from the various colonies of Vultures.

Sitting quietly one day, concealed just below the crest of a precipitous ridge, one of these splendid birds sailed slowly by within fifteen yards of us, working along the cliff-face in a "sneaking," unobtrusive manner, as if anxious to avoid observation and perhaps also to take advantage of the air-current up the cliff-face. Every detail of its plumage was, of course, plainly visible, and it is of note that in the broad-side view (so extremely difficult to depict) the tips of the long primaries, despite their stiffness, the narrowness and lack of emargination of the web of these feathers when compared with those of a Griffon or an Eagle, shewed very considerable separation and up-curl. That these features are actually less, as would be supposed from a glance at the respective primary feathers themselves, than in the Vultures and Eagles, became apparent very soon after the bird had passed, the receding aspect being that of a long, comparatively slender, and flat-winged bird. An occasional 45° stroke of the pinions from the wrist—the forearm scarcely seemed to move, and it was lost to view round an angle of the cliff half-a-mile away.

Sierra Nevada.—We frequently saw the species in the distance, but only once at close quarters. From these observations it seemed that 1000 to 5000 ft. was probably the breeding zone; in any case, the early season at which the Lammergeier starts nesting would seem to preclude higher elevations by reason of the snow. 7000 ft. was the greatest altitude at which we saw the species, but this was evidently a travelling individual. They doubtless have to wander extensively in search of food.

Of other "Accipitres," none of which were seen at high elevations, the following gives the result of our observations as to breeding zones in these districts:—

At or near sea-level ...	Marsh and Montagu's Harriers, Booted Eagle, Spanish Imperial Eagle, Serpent-Eagle, Black and Red Kite.
From sea-level up to about 2000 ft. in the Serrania de Ronda.	Buzzard, Bonelli's Eagle, and probably Sparrow-Hawk.

Columba palumbus. Wood-Pigeon.

San Cristobal.—On March 21st flocks were seen among the ilex and the lower pinsapos, but our observations during the April visit being confined to higher elevations on this side of the mountain, we did not notice whether they remained to breed. (They nested abundantly in the Coto Doñana.)

Sierra Nevada.—Not seen.

Streptopelia turtur. Turtle-Dove.

San Cristobal.—On April 24th at 11 A.M. six migrant Turtle-Doves were resting on an esparto-grass plateau at 4000 ft.

Sierra Nevada.—Not seen.

Caccabis rufa. Red-legged Partridge.

For the complete status up to date of the Red-legged Partridge in these parts the reader should refer to 'Unexplored Spain.' The Sierra is not the true home of the species in Andalucia, and yet two pairs were seen right up among the mists and snow of the Sierra Nevada at 8500 ft., and another at the summit of the Dornajo, 7000 ft.

In San Cristobal the Red-legged Partridge was not observed above 3000 ft.

XXIV.—*Observations on the Genus* Cœreba, *together with an Annotated List of the Species.* By Percy R. Lowe, B.A., M.B., M.B.O.U.

(Plates VII. & VIII.)

I. Introductory Remarks.

The following observations are based upon the examination of some *four hundred* examples of the genus in the National Collection at South Kensington; upon *a hundred and fourteen* in my own collection; and upon *two hundred and eighty-four* in the Hon. Walter Rothschild's collection at Tring, which he was kind enough to place at my disposal.

The genus *Cœreba* (one of the typical genera of the family

Cœrebidæ) is in point of distribution entirely confined to the Neotropical Region (see Map, Pl. VII.). Its range in this region is fairly comprehensive, being comprised, as regards the continent, within the vast extent of forest-clad land which lies between the latitudes of 20° N. and (roughly) 30° S., and embracing (with a few exceptions to be presently mentioned) the whole of the West Indian Islands.

In the Bahamas the genus attains its furthest northern limits (lat. 27° N.), an extension rendered possible by the warm waters of the Gulf Stream, which bathe these low-lying coral-islands. A small colony has also been reported from Indian Key on the west coast of Southern Florida, which may have been derived from wind-blown stragglers from the Bahamas.

Excluding these last, the present existence of which is possibly doubtful, I have been unable to discover any records of the occurrence of the genus on the continent further north than Jalapa and Vera Cruz on the eastern shores of Southern Mexico (lat. 20° N.).

From these latitudes the northern limits of the genus are represented by a line which skirts the northern boundaries of Guatemala and then pssses eastwards to Jamaica in a curve which includes the islands of Cozumel and the Caymans. From Jamaica the line is again continued eastwards and northwards through the Windward passage so as to include the Bahama Group.

Neither Yucatan, nor British Honduras, nor Cuba are included within the limits of the northern range of the genus. Whether Honduras proper is likewise outside these limits I have been unable to ascertain; but although there are no available records of the occurrence of the genus in that country, it would be altogether surprising to find no species of it represented in at least its more western parts.

The southern limits of the genus, so far as present records go, are represented by a line which passes along the southern borders of Peru and Bolivia and then southwards and eastwards to strike the eastern coast of South America to the south of the province of Rio Grande do Sul in Brazil.

Whether Paraguay should be included within these southern limits it is impossible to say, but the records are so far negative.

Contained within the limits of this vast area, the genus is commonly and universally distributed wherever the immediate local conditions are favourable. Moreover, as regards station, the representative species of the genus seem equally at home, both on coral-islands, such as the Bahamas and the Caymans, at virtual sea-level, or on forest-clad mountainous heights which attain to an elevation of as much as 9000 feet in the Peruvian Andes.

In addition, however, to the exceptions already referred to in the case of Yucatan, British Honduras, and Cuba, the genus is not represented in the Galapagos or in the following small Caribbean Islands: viz., Blanquilla, the Hermanos Group, Islas de Aves, and Orchilla (Leeward Islands, Venezuela), or in Swan Island, which lies some hundred miles to the north of Honduras.

The absence of any species from the smaller islands just mentioned, whether owing to adverse local conditions or to distance and isolation from the mainland, is not very surprising; but to the very interesting subject of the absence of any species from Cuba we shall return.

To anyone studying the many species which characterize the genus *Cœreba* there are certain outstanding features which can hardly fail to be apparent. They may be enumerated as follows:—

(1) The striking contrast in mere depth of coloration which characterizes insular species as compared with those inhabiting the mainland. (*C. luteola* and *C. guianensis*, which are found along the northern limits of South America, are, however, exceptions to this statement.)

(2) The contrast in depth of coloration between the pileum and mantle characterizing all continental species (except the two species just mentioned) as compared with some uniform shade of black seen in these parts in all insular species.

(3) The relatively small amount of variation met with in

continental species and the equally remarkable amount of variation in insular forms. In no point is this more obvious than in the very slight amount of variation in the depth of coloration of the grey throat-patch in continental species, although they may be separated by thousands of miles. As regards insular species, there is probably no genus in the world which is marked by such numerous island forms presenting such striking and such very constant specific differences; and this in spite of the fact that on most of the islands the local conditions are remarkably similar.

(4) The division which can be made of all the species, whether continental or Antillean, into two well-defined groups:—

(*a*) With a definite white wing-spot.
(*b*) Without any wing-spot.

(5) The restriction of these two races to certain very definite tracts or regions which are not scattered in a haphazard way, but in each case are more or less continuous and belong to certain definite and distinct geological systems.

Thus the distribution of the two races seems to faithfully conform to or reflect what we know of the past geological epochs of elevation or depression which have affected the areas to which they are confined. A reference to the accompanying sketch-map (Plate VII.) will perhaps make our point clearer.

In this map the area of distribution of the *race with wing-spots* is indicated by diagonal lines; whereas that of the *race without wing-spots* is indicated by a fine dot tint. To accentuate the different origin of the two races, the inset map representing South America only, is drawn so as to picture in a rough way the distribution of land-areas in early and middle Tertiary times. By this means the geological differentiation of the areas now inhabited by the two races may be more easily realised at a glance. Confining, then, for the moment our attention to the southern continent, we see that the *white-wing-spotted race* (represented

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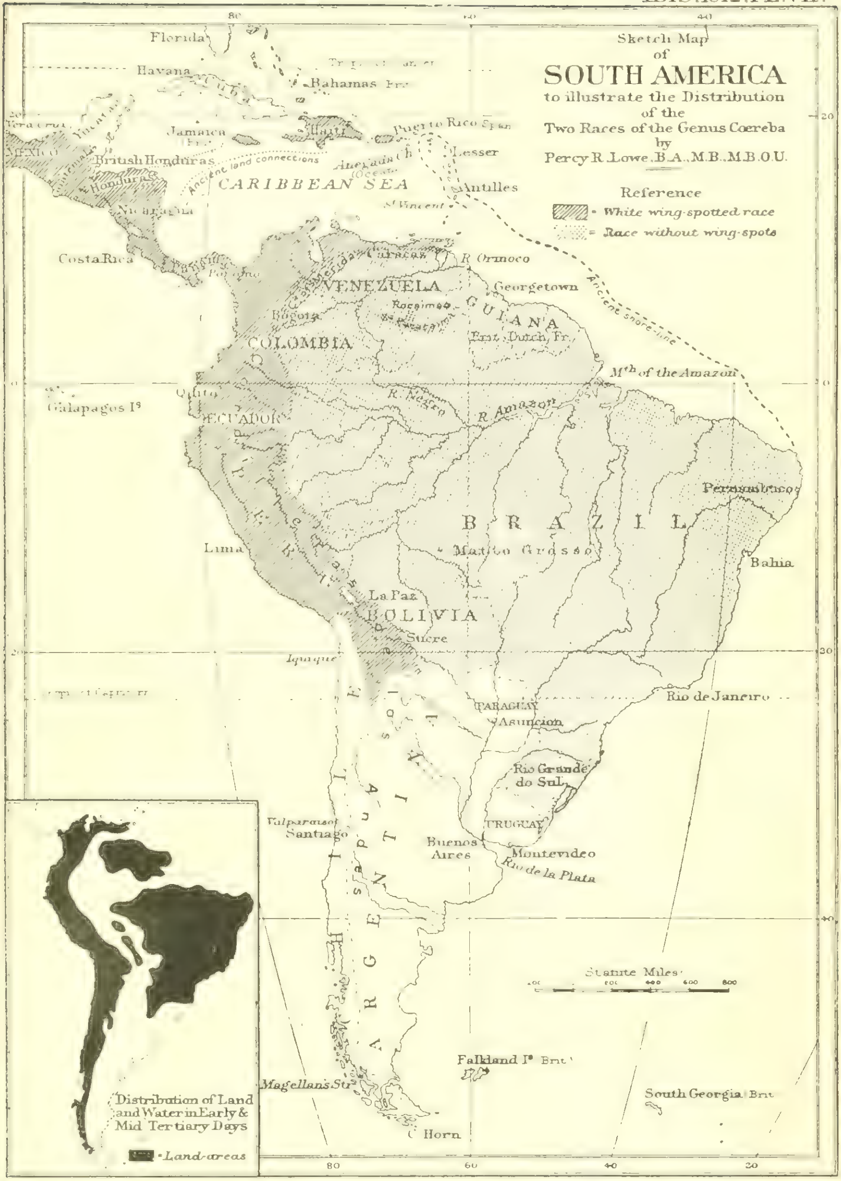

Sketch Map of SOUTH AMERICA to illustrate the Distribution of the Two Races of the Genus Coereba by Percy R. Lowe, B.A., M.B., M.B.O.U.
Reference
▨ = White wing-spotted race
░ = Race without wing-spots
Florida
Havana
Bahamas Br.
Cuba
Jamaica Br.
Haiti
Porto Rico Span
Lesser Antilles
St Vincent
Vera Cruz
Mexico
Yucatan
British Honduras
Honduras
Nicaragua
Costa Rica
Panama
Ancient land connections
CARIBBEAN SEA
Caracas
R. Orinoco
VENEZUELA
Georgetown
GUIANA
Brit. Dutch, Fr.
Roraima
Bogota
COLOMBIA
Ancient shore-line
Mth of the Amazon
Quito
Galapagos Is
ECUADOR
R. Negro
R. Amazon
PERU
BRAZIL
Pernambuco
Matto Grosso
Bahia
Lima
La Paz
BOLIVIA
Sucre
Iquique
Tropic of Capricorn
PARAGUAY
Asuncion
Rio de Janeiro
Rio Grande do Sul
URUGUAY
Valparaiso
Santiago
Buenos Aires
Montevideo
Rio de la Plata
CHILI
ARGENTINA
Andes
Statute Miles
200 400 600 800
Falkland Is Brit.
South Georgia Brit.
Magellan's Str.
C. Horn
80
60
40
20
0
Distribution of Land and Water in Early & Mid Tertiary Days
■ = Land-areas

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by the species inhabiting Peru, Ecuador, Columbia, and Venezuela) is definitely restricted to a long mountain system (the Andes), together with its easterly extension as the Sierras of Merida and the cordilleras of Venezuela; and this system of mountains has only become elevated to any considerable heights since late Miocene or early Pliocene times. On the other hand, we find the *race without any wing-spots* is definitely restricted to all that vast area of land which lies to the eastward of the continent and which is now known as Brazil and the Guianas.

Two well-differentiated species now inhabit these last two areas—viz., *C. chloropyga* and *C. guianensis*; and their original centres of distribution correspond with two well-defined land-areas, which in middle Tertiary days were insular and separated from each other and from the low Andean chain by long inland extensions of the sea, as shown in the inset map.

Thus, on the one hand, we have a very ancient land-mass, represented to-day by the denuded Archæan and Palæozoic rocks forming the central uplands and mountainous coast-regions of Brazil (the home of *C. chloropyga*); while, on the other hand, we have another insular mass of Archæan mountains, comprising to-day the more elevated parts of Guiana and the Sierras of Pacaraima, Roraima, and others, which are now the topotypical home of *C. guianensis*.

Both these insular land-masses and the long Andean chain have (geologically speaking) only recently been linked up by the filling of the intervening seas with alluvial deposits, plus the effects of the general elevation of the continent. Thus they have remained sufficiently isolated and distinct in physical characteristics, even up to recent geological times, to give origin to the two races under consideration.

Turning now to Central America and the Antilles, we find the *white-wing-spotted race* still restricted to the long mountainous system which is continued through the Central American States as a more or less direct (if only physical and not geological) prolongation of the Andes. We can, moreover, trace this mountain system eastwards by way of the now sunken Honduran banks to Jamaica, and thence throughout the long and now disconnected ranges which traverse Haiti, Puerto Rico, and the Virgin Islands; and still we find it occupied by the same subdivision of the genus. From the Virgins the progress southwards into the Lesser Antilles of the white-wing-spotted race was stayed by the deep oceanic passage known as the Anegada Channel.

Lastly, there is a small northerly extension of the *white-wing-spotted race* (represented by *C. saccharina*) from the eastern extremities of the Venezuela cordilleras, and this race inhabits the inner ring of the Lesser Antilles as far north as St. Vincent. And as shewing how apparently unimportant details conform to what we know of past geological periods of land-elevation, it is to be noted that the arrangement of the white spots on the lateral tail-feathers of *C. saccharina* is identical with that seen in typical specimens of *C. luteola*: pointing to the conclusion that *C. saccharina* is merely an offset of the white-wing-spotted race inhabiting the mountainous chains of Venezuela*. Thus in the study of two apparently trifling characteristics in *C. saccharina* (viz., the white wing-spots and the arrangement of the white patches on the tail-feathers) we seem to have presented to us yet another link in the chain of evidence relative to the former connection of the Lesser Antilles with the continent by means of an elevated causeway (in early Pliocene and Pleistocene days).

As regards the rest of the Lesser Antillean islands, we find these occupied by the *race without wing-spots*; and in conformity with what is known of former land-extensions affecting the north-easterly parts of the continent, we may presume that this race without white wing-spots, which now inhabits the more northerly of the Lesser Antilles, represents a northerly extension of the Brazilian race (*C. chloropyga*). Probably it spread northwards along elevated land-areas to the east of the ancient course of the Orinoco, a supposition which is prompted by what we know in regard to the land-shells of the more northern Lesser Antilles, and the remains of large Pleistocene animals found in the phosphate deposits of Anguilla (see Cope).

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* It is interesting to note that an elevation of the Grenada bank to the extent of forty fathoms would produce an island nearly 100 miles in length; also as confirming the above remarks upon *C. saccharina* that Mr. Thomas Bland has called attention to the fact that the genera and species of land molluscs which occur in the islands of St. Vincent, the Grenadines, and Grenada, are mostly allied to those which are characteristic of Venezuela (Proc. Amer. Phil. Soc. Philad. vol. xii. p. 56, 1871).—P. R. L.

Thus, regarded in the light of work done in relation to the past geological history of the West Indies, Central and South America (Gregory, Agassiz, Spencer, &c.), it is impossible to regard these two races which characterize the genus as anything but quite distinct; and to recognize such subspecies as *C. chloropyga luteola* (*cf.* Ridgway, 'Birds of North and Middle America,' pt. ii. p. 408 footnote) and *C. chloropyga mexicana* (*cf.* Hellmayr, "Contribution to Ornithology of Western Columbia," Proc. Zool. Soc. London, 1911, p. 1098), which combine representatives of both races, appears to me to be scientifically indefensible, or at least inadvisable.

(6) Species from the Greater Antilles have both webs of the lateral tail-feathers broadly and nearly equally tipped with white; while in South-American and Lesser Antillean forms this white is more restricted on the inner web and is reduced on the outer to the merest border.

It is to be noted, however, that *C. bananivora* from Haiti is an exception to this rule, for it conforms to the continental arrangement, and the same remark also applies to *C. saccharina*, as we have just seen.

(7) The remarkable absence of any representative of the genus from the island of Cuba and, having in view the nature of the two countries, the less notable absence from Yucatan and British Honduras.

(8) The very interesting occurrence of melanic forms in the islands of St. Vincent, Grenada, Los Testigos, and Los Roques.

(9) The remarkable effect that the mere isolation furnished by the West Indian Islands has had in fostering the

development of variations on the two types, which, we may presume, originated on the South-American continent. Do away with the islands, and we should be left (if we ignore subspecific differences) with some four species to characterize the genus.

(10) The fact, perhaps less prominent than others, that at the extreme northern limits of the genus (the Bahamas) and again at the extreme southern (Peru and the province of Rio Grande do Sul, Brazil) the tendency is to produce species in which the individuals are characterized by larger measurements than the rest and also by a more pallid coloration.

Absence of representatives from Cuba, Yucatan, and British Honduras.—The fact that no species of *Cœreba* inhabits Cuba, and that not even stragglers, so far as I am aware, have been recorded from that island, is an ornithological problem of very peculiar interest. I have landed at some dozen widely-separated localities, on the northern and southern coasts of the island, where the local conditions seem to differ in no obvious way whatever from those met with in other islands where the genus is found, and yet have never seen so much as a solitary straggler.

From one's personal experience of the nature of the surroundings, it seems impossible to believe that the Flora can be in any way responsible for this absence. Moreover, Dr. Rendle informs me that although the Flora of Cuba is different in many respects from that of the rest of the Greater Antillean islands, yet that such differences in his opinion would be too insignificant to have any influence on the subject in question.

Climatic conditions might well have a more potent effect, for in the winter months "northers" are frequent, and the fall in temperature may be very marked. In this respect Cuba appears to me to fall into the same category as the more northern parts of Eastern Mexico and also of Florida. Thus while the Flora of Cuba might remain almost identical with that of other Greater Antillean islands (for we know that closely-allied species of the vegetable world may live under very different climatic conditions), yet these constantly recurring cold snaps in winter might be enough to explain the absence of the genus.

Failing climatic conditions as an explanation, we may look to the absence of species of the genus from Yucatan and British Honduras as a possible clue. The physical conditions in these two countries are all against the existence of any representative species. In British Honduras there is only a very narrow belt of fertile country between the wide coastal fringe of mangrove-swamps and the arid hills inland, which are covered with "pine" forests; while as regards the peninsula of Yucatan, the conditions are still more hostile. The country is very flat, very dry, and very hot. The streams run for the most part underground, and the only surface-water is found in peculiar natural wells (cenotes). In consequence the Flora, generally speaking, is of a scrubby order, and in winter many of the trees and bushes assume a much faded and withered condition or entirely lose their leaves—conditions which are adverse to the maintenance of a bird that lives chiefly on insects which frequent the honey-laden flowers of plants and bushes.

Yucatan is, in fact, little more to-day than a very recently upraised coral platform, consisting of weathered coral limestone of a very rough and pitted nature or, in other places, of sheets of a recent shell conglomerate.

These facts, as we have hinted, may furnish the clue to the absence of *Cœreba* from Cuba. For we may conclude that while these Pliocene and Pleistocene coral formations and conglomerates were being laid down beneath the sea, Cuba was very much more isolated than it is now. Indeed, it was not only further isolated from Central America, but also from Northern America by reason of the fact that at some part of these periods Florida was likewise in a state of submergence.

Consequently, if during one of the latest periods of West Indian elevation in either Pliocene or Pleistocene times the Honduratin banks formed a chain of very closely connected islands*, permitting the immigration of the original Greater Antillean stock of the genus from Central America to Jamaica, we can perhaps conceive that this line of emigration would have missed Cuba altogether, and have pushed eastwards in the direction of the peninsula of Jacmel in Haiti, and from thence onwards through Puerto Rico to the Virgin Islands.

It may be objected that the distance between Jamaica and Haiti from Cuba is so slight that such a proposition seems unlikely. But in answer to this it must be stated that the species comprising the genus *Cæreba* are peculiarly sedentary, and that there is little or no evidence that they have ever extended their range by any other means than land-bridges. Moreover, it must be remembered that between Jamaica and Haiti on the one hand and Cuba on the other there stretched Bartlett's Deep and the Windward passage. In all probability this stretch of deep water would have formed a formidable barrier to the passage of such a sedentary race in even the greatest periods of elevation of which we have any evidence in the West Indies.

But whatever the possible explanation may be, we may feel fairly certain, bearing in mind the great depression obtaining in Central America and the West Indies in Miocene times, that no extension of the genus from the continent to the Greater or Lesser Antilles took place before the early Pliocene elevation and possibly not before the Pleistocene.

II. ANNOTATED LIST OF THE SPECIES OF THE GENUS *CŒREBA*.

Cæreba Vieillot, Hist. Nat. Ois. Amér. Sept. 1807, tom. ii. p. 70. (Type, *Certhia flaveola* Linn.)

Certhiola Sundevall, Œfv. Vet.-Ak. Handl. Stockholm, 1835, p. 99.

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* The Pedro bank, within fifty miles of Jamaica, after an elevation of from 30 to 40 fathoms, would give an island 100 miles long, 30 miles in breadth near its centre, and 45 miles at its western edge.

Cœreba mexicana.

Certhiola mexicana Sclater, Proc. Zool. Soc. Lond. 1856, p. 286 (S. Mexico).

Cœreba mexicana Ridgw. Birds N. & M. Amer. pt. ii. 1902, p. 409 [Southern Mexico (States of Vera Cruz, Oaxaca, &c.) through Central America and Pacific coast of northern South America to Ecuador].

Specimens examined. Ten from Mexico, six from Nicaragua, fourteen from Guatemala. eight from Costa Rica, five from Panama.

Hab. Southern lowlands and southern coast-districts of Mexico; Guatemala; Nicaragua; Costa Rica and Panama (Chiriqui and Veragua).

In this continental form the upper parts are characterized by a striking contrast between the colour of the pileum and that of the mantle and scapulars. This is characteristic of all Central and South American species of the genus with the exception of two species (*C. luteola* and *C. guianensis*) found in the north of South America and the races which inhabit Gorgona Island (west coast of Columbia) and San Miguel Island in the Bay of Panama.

This contrast is visible at a glance, and, with the exceptions just mentioned, serves to easily distinguish a continental example of the genus from a West Indian one, in which the upper parts (rump excepted) are uniformly (or very nearly so) coloured black or some dark shade of it.

In *C. mexicana* the pileum is sooty blackish or brownish black; the hind-neck, mantle, and scapulars are uniform greyish olive or olive-grey; the rump is yellowish olive-green, and the under parts a uniform and pale greenish yellow.

So far as I can deduce from the material at hand, this species would appear to extend from its northern limits in Southern Mexico through the Central American States indicated above, as far as the Isthmus of Panama, where it meets and merges with a slightly differentiated race (*C. mexicana columbiana*), characterized by possessing an olive-yellow rump as compared with an olive-green one, and also by a slightly larger wing-spot and by being a slightly larger bird. As in all wing-spotted continental species (except *C. luteola*), the wing-spot in *C. mexicana* is a variable quantity, and is nothing like so conspicuous as in the insular races of the Greater Antilles. In *C. mexicana* and its allies it is sometimes liable to be nearly concealed by the primary wing-coverts. In six examples from Nicaragua it was hardly visible. It is worthy of note that although several large collections of birds have been made in Yucatan, none contained any species of the genus *Cœreba*, so that we may conclude that the genus is not represented there. I have also been unsuccessful in finding any record of a representative from British Honduras or Honduras proper. As regards British Honduras, the nature of the country is such as to cause no surprise at the absence of any species of the genus, the Flora generally being quite unsuitable, but the conspicuous absence of all records from Honduras proper seems very curious. While on the eastern coast of Mexico at Tampico and also further south at Coatzacoalcos I failed to secure or to see a single specimen of *C. mexicana*, although my excursions in search of birds took me in all directions to distances of more than twenty miles from both these localities. This was in the early spring, during three consecutive yearly visits.

CŒREBA MEXICANA COLUMBIANA.

Certhiola columbiana Cabanis, Journ. für Orn. xiii. 1865, pp. 412–413 (Bogotá).

Certhiola mexicana columbiana Berlepsch, Journ. für Orn. xxxii. 1884, p. 276 (Bucaramanga); Ridgway, Proc. U.S. Nat. Mus. viii. p. 276.

Cœreba mexicana columbiana Cory, Auk, viii., Jan. 1891, p. 41.

Cœreba chloropyga mexicana Hellmayr, Proc. Zool. Soc. 1911, p. 1098.

Hab. Columbia, extending into Panama.

Specimens examined:—

Eleven specimens from Columbia. Coll. Brit. Mus.

Nine native skins from Bogotá. Coll. Rothschild.

Ten specimens from Panama. Brit. Mus.

Seven specimens from Panama. Coll. Rothschild.

This subspecies of *C. mexicana* differs from typical specimens in possessing an olive-yellow rump-patch as compared with olive-green in Mexican examples, and in having the mantle ashy brown instead of olive-grey. The wing-spots in specimens from Bogotá tend to be somewhat larger and the yellow of the under parts somewhat richer (olive-yellow as compared with greenish yellow—chlorotic).

In my opinion, with the material available, there seems to be little doubt about the constancy of the distinctly more yellowish coloration of the rump in typical specimens from Columbia.

Ten examples from Panama in the British Museum Collection also exhibit it, but specimens from Chiriqui and Veragua (coll. Rothschild) agree with specimens from Vera Cruz (typical *C. mexicana*), from which it would seem probable that the two races meet or intermingle somewhere about the line of the Panama Canal.

Two specimens labelled "Juntas (Western Columbia)" in the Tring Collection seem to be undoubtedly examples of *C. luteola*.

Mr. Hellmayr (*l. c.*) has recently determined the West Columbian form as a subspecies of *C. chloropyga*. I have already noted, in the introductory remarks to this paper, the objections to such a proceeding, for *C. chloropyga* belongs to a distinct group characterized by the absence of a white wing-spot, and which, moreover, is restricted to land-areas having quite a distinct geological history.

Cœreba mexicana intermedia.

Certhiola intermedia Salvadori & Festa, Boll. Mus. Zool. Torino, xv. no. 357, 1899, p. 13; Ridgway, Birds N. & M. Amer. pt. ii. p. 407 (footnote, synonymy).

Type locality. Valley of Zamora, Gualaquiza, Ecuador.

Hab. Ecuador.

Specimens examined. Twenty-eight.

The specimens which I have examined from all parts of

Ecuador—Gualaquiza, Esmeraldas. Zamora, Santa Rosa, Nanegal (coast districts), Quito, Intaj. Sarayacu (mountains); and whether from the eastern or western slopes of the Andean system—all agree in being darker and more richly coloured than specimens from Mexico. Thus the upper parts exhibit a darker and browner tint than in *C. mexicana* (olive-grey), the pileum is not so strongly contrasted with the mantle, and the rump is yellow with a faint olive tinge, and even brighter than in *C. columbiana.* The yellow of the under parts is also strikingly richer and deeper, with a tinge of ochraceous in some seven or eight specimens in the British Museum.

The wings of Ecuador birds average 58·9 mm. as compared with 55·5 in Mexican birds. As regards the ashy grey of the throat-patch, I cannot distinguish any noticeable difference.

Some specimens of *C. m. intermedia* come very close to topotypical examples of *C. m. columbiana*, but, generally speaking, Ecuadorian specimens are darker and richer both above and below, and the yellow of the rump-patch is distinctly brighter.

It may be added that *C. intermedia* was originally described by Salvadori and Festa as intermediate between *C. columbiana* Cab. and *C. magnirostris* Tacz.

Goodfellow ("Ornithological Journey through Colombia and Ecuador," Ibis, 1901, p. 319) states that "birds from Western and Eastern Ecuador do not vary." In July he found a nest with two eggs at Intaj.

Cœreba magnirostris.

Certhiola flaveola Tschudi (nec Linn.), Fauna Peruviana, Ornith. 1845, p. 236.

Certhiola peruviana Taczanowski (nec Cabanis), Proc. Zool. Soc. 1874, p. 512 (Paltaypampa).

Certhiola magnirostris Taczanowski, Proc. Zool. Soc. 1879, p. 225.

Hab. Central Andean chain of mountains, Peru; also eastern slopes (Cajabamba, Vina Maranon, Chimabamya, Callacate, Huamachuco, Guajango).

Six specimens examined. Coll. Brit. Mus.
Four „ „ Coll. Rothschild.

This fine mountain-form from Peru is at once distinguishable from *C. intermedia* by its much longer bill and wings, by the pale ashy brown of the mantle, in marked contrast with the darker brown of the pileum, by the yellowish olive-green of the rump, and the pale chlorotic yellow of the under parts. In point of size and general appearance its nearest ally is *C. c. majuscula*, from Southern Brazil, but it can be at once distinguished from that subspecies of *C. chloropyga* by its white wing-spot and much longer and stouter bill.

It is found in the central Andean chain of mountains, and also on its eastern slopes, at an elevation of from 5000 feet to 9000 feet.

Taczanowski says (*l. c.*) that the wing-measurement = 64 mm., and that the bill = 19 mm.; I find that of the specimens in the British Museum the largest wing-measurement is 63 mm. and the largest bill (*exposed culmen*) is 16 mm.

In *C. mexicana* (topotypical specimens) the wings of six specimens averaged 55·5 mm., while the exposed culmen was 10–11 mm.

A nest described by Taczanowski from Paltaypampa (5500 feet) in Central Peru (P. Z. S. 1874, p. 512), and discovered on May 19th, 1872, was constructed of large blades of grass and of long branched stalks of moss mingled with vegetable down.

In my description of the next species, *C. pacifica*, I have stated my reasons for sinking Cabanis' name *C. peruviana*.

CŒREBA PACIFICA.

Cœreba pacifica Lowe, Bull. B. O. C. vol. xxix. p. 85 (1912).

Hab. Pacific coast of Peru (Pacasmayo, Chepen, Chimboté and Eten).

Type. In Coll. Brit. Mus., Pacasmayo.

Measurements. Exposed culmen 10 mm.; wing 56 mm.; tarsus 16 mm.

Differs from *C. magnirostris*, its Andean ally, in being a smaller bird with smaller wings and much smaller and more curved bill. The coloration in the two species is nearly identical. In *C. pacifica* the bills are also smaller than in *C. mexicana*, and the bird is paler above and below.

There are only four specimens of this Pacific sea-board race in the British Museum; but I have examined two others from coast localities in the Tring collection which exactly agree with it.

I at first thought this form might be Cabanis' *C. peruviana* (J. f. O. 1865, p. 413); but Cabanis' description agrees more closely with that of *C. magnirostris* of Taczanowski; for he says his specimen (a somewhat imperfect one obtained by the traveller Warscewicz) is almost identical in size and coloration with *C. majuscula*. The latter is very similar to *C. magnirostris*. but lacks the wing-spot and is altogether larger than *C. pacifica*.

Moreover, Cabanis' gives no measurements and says that "the exact locality is missing, probably it is in Eastern Peru, and thus the bird is identical with one referred to by Von Tschudi."

Tschudi's *C. flaveola* was presumably described from the *eastern* slopes of the Peruvian Andes, which is the home of *C. magnirostris*, and of which I consider it a synonym.

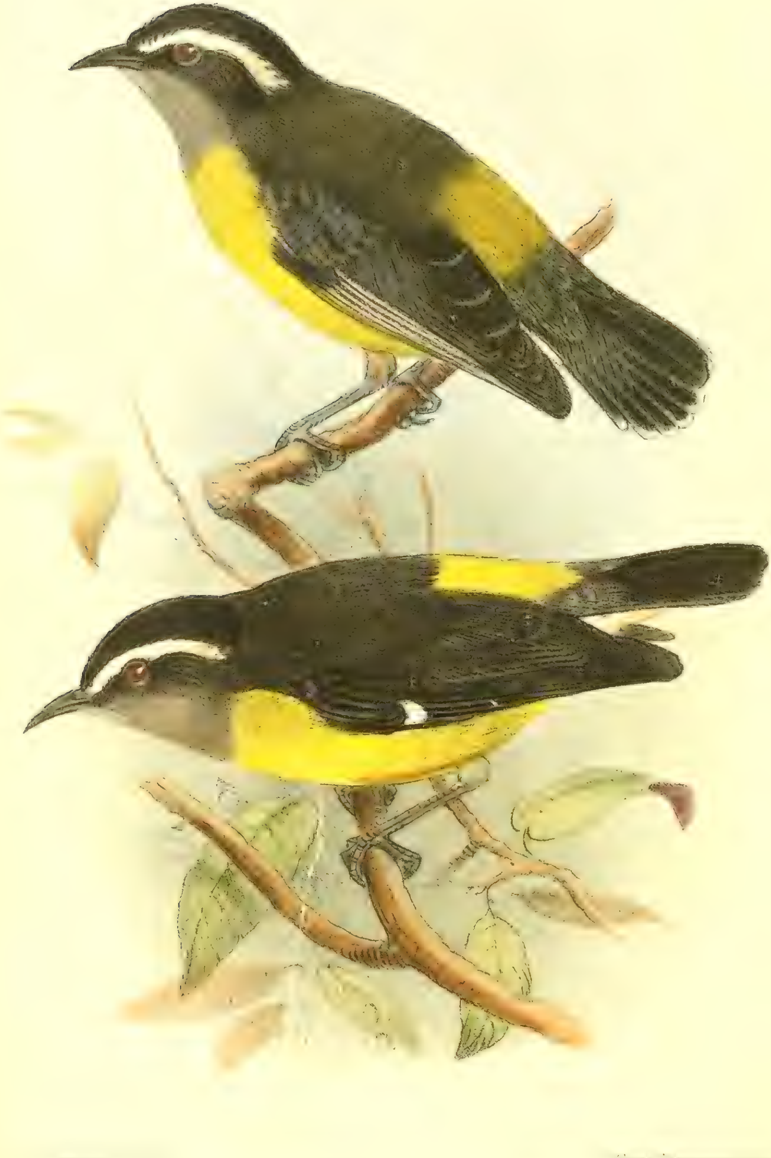
In addition to this, Dr. Reichenow informs me that the type of *C. peruviana* is missing.

Consequently, with so much uncertainty attaching to the name which Cabanis gave to his Peruvian bird I think it would be better, instead of regarding it as identical with *C. magnirostris*, over which it would have priority, to sink Cabanis' name altogether.

CŒREBA CHLOROPYGA.

Certhiola chloropyga Cab. Mus. Hein. i. 1851, p. 97 (Bahia, Brazil); Sclater, Cat. Birds Brit. Mus. vol. xi. p. 44.

Hab. Eastern Brazil (Bahia; Pará district; Pernambuco:



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Maranhao; Rio Janeiro and Minas Geraes, as far south as about the latitude of S. Paulo).

Specimens examined. Twelve adult males and females from type locality (Bahia); eleven from Pará; nine from Pernambuco, Rio Janeiro, and Minas Geraes.

Measurements. Wings of Bahia specimens = 59–60 mm.

Topotypical specimens have the mantle ashy brown, the pileum brownish black, wings dark brown narrowly edged with lighter, rump olive yellowish, tail-feathers dark brown, throat-patch ashy grey; no wing-spot; yellow of under parts clear saffron-yellow.

Birds from Rio Janeiro and that district come so close to typical specimens that they cannot be separated, yet if anything the upper parts are lighter and olive-brown instead of ashy brown.

Specimens from Para seem to be inseparable from Bahia specimens.

With the material available I cannot separate Bolivian specimens from true *C. chloropyga.*

CŒREBA CHLOROPYGA MAJUSCULA. (Pl. VIII. fig. 1.)

Certhiola majuscula Cab. Journ. für Orn. 1865, p. 413.

Hab. Rio Grande do Sul (Guaratingetá), Parana and S. Paulo.

Specimens examined. One adult from Guaratingetá (type Coll. Mus. Berlin), two adults from Pelotas (Coll. Brit. Mus.), and two from S. Paulo (Coll. Rothschild).

This southern form of *C. chloropyga,* of which Dr. Reichenow has very kindly allowed me to see the type, differs from typical *C. chloropyga* in being somewhat paler and distinctly larger. There is no wing-spot.

In the type specimen the measurements are as follows:—Exposed culmen 12 mm.; wing 63 mm.; tail 37 mm. The two specimens from Rio Grande do Sul are 62 mm. and 63 mm. respectively, while in one from S. Paulo the wing is 62 mm. (other ? ♀).

In five adult typical specimens from Bahia the wings average 60 mm.

CŒREBA CHLOROPYGA ALLENI.

Cœreba chloropyga alleni Lowe, Bull. B. O. C. vol. xxix. p. 86 (1912).

Certhiola chloropyga Allen, Bull. Amer. Mus. N. H. vol. iii. 1890–91, p. 348 (Chapada, Matto Grosso).

Type. Coll. Brit. Mus.

Hab. Chapada district, Matto Grosso, Brazil.

Measurements. Wings average 58 mm.

Seven adults (males and females) differ from typical specimens from Bahia in being distinctly paler above and below and in having the pileum barely differentiated from that of the mantle.

Thus the pileum, mantle, and scapulars are pale olive-brown or brownish olive (wings and tail darker brown), the rump is yellowish olive-green, and the yellow of the under parts is pale citron as compared with saffron-yellow. There is no white wing-spot, and the colour of the throat-patch is ashy white as compared with greyish in typical *C. c. chloropyga*. As compared with *C. c. majuscula* this race is smaller and paler.

CŒREBA CHLOROPYGA CAYENNENSIS, subsp. nov.

Cœreba chloropyga Hellmayr, Nov. Zool. vol. xv. p. 112.

Type. ♀ Mus. O. S. in coll. Brit. Mus., Oyapoc, Cayenne.

Hab. Dutch and French Guiana (lowlands).

Twelve adult specimens examined.

It is impossible to ignore the fact that examples from the Cayenne and Surinam coast-belts differ from typical specimens of *C. chloropyga* from Bahia. They appear to be intermediate in coloration between examples from British Guiana (*C. guianensis*) and typical *C. chloropyga* (*cf.* also Hellmayr, *l. c.*). In case, therefore, it is thought advisable to distinguish this geographical race by a distinctive name, I propose that of *Cœreba chloropyga cayennensis*.

In the specimens which I have examined from the above localities the pileum is sooty black as compared with brownish black in birds from Bahia, the colour of the mantle and scapulars is darker ashy brown, and the rump is distinctly more yellow. There is no wing-spot.

Cœreba guianensis.

Certhiola guianensis Cab. Mus. Hein. i. p. 97 (1851); Sclater, Cat. Am. Birds, 1862, p. 53.

Cœreba guianensis Berlepsch & Hartert, Nov. Zool. vol. ix. p. 17 (1902).

Cœreba guianensis Hellmayr, Nov. Zool. vol. xii. p. 272 (1905).

Hab. Highlands of British Guiana (Roraima, Bartica Grove, Merumé Mts., Camacusa); North Brazil, Upper Rio Negro (Marabitanas, Cobati); South Venezuela, Rio Suapure, Rio Caura.

Specimens examined. Seventeen adult males and females from British Guiana (Coll. Brit. Mus.), and twelve from Rivers Suapure and Caura, Venezuela (Coll. Rothschildi).

This is a very distinct species and any series from the above-mentioned localities is recognizable at the merest glance from typical *C. chloropyga* with which one might have expected it to be closely allied.

Upper parts. Pileum pure black; mantle, neck, and scapulars dark brownish black, barely distinguishable from pileum and totally distinct from the ashy-brown mantle of *C. chloropyga*; rump with a very conspicuous broad band of bright and pure yellow, but not so rich as in *C. luteola*; no wing-spot.

Under parts. The yellow of these is deeper and richer than in true *C. luteola* and very similar, if not identical, with that seen in Trinidad birds. Throat-patch nearly identical with that of true *C. luteola* and *C. chloropyga*.

To sum up, *C. guianensis* is practically similar to *C. luteola*, but is without any wing-spot.

A glance at a map will shew that the distribution of this species corresponds to a well-defined and more or less isolated geological area characterized by a system of rocks of extreme antiquity—an area, be it said, which at no remote period of time probably stood out as a prominent insular mass.

CŒREBA LUTEOLA MAJOR. (Pl. VIII. fig. 2.)

Certhiola luteola Cab. Mus. Hein. i. 1850, p. 96 (Puerto Cabello and Cumaná, Venezuela; Cartagena, Columbia; Coll. Berlin Mus.).

Certhiola major Cab. Mus. Hein. i. 1850, p. 96.

Hab. Caribbean coast district of Columbia and Venezuela: Margarita Island; Peninsula of Cariaco; Central Venezuela (*e. g.* Altagracias, Ciudad Bolivar), and S. Esteban, Venezuela.

Specimens examined. Sixteen adults in Coll. Brit. Mus.; six in Coll. P. R. L.; ten adults in Coll. Tring.

It may be pointed out that this species was first described from Cumaná and Puerto Cabello, that is from very dry and arid coast districts overgrown with cactus and mimosa scrub. Birds from Margarita Island and the deserts of the Cariaco Peninsula agree with typical birds in their pale coloration as compared with birds taken in the mountainous interior of Venezuela, which are deeper in colour and also have larger measurements.

C. luteola major (Cab. Mus. Hein. i. 1850, p. 96).—Owing to the kindness of Dr. Reichenow I have been enabled to examine the type specimen (ad. ♂ 8164, Guiana, Coll. Schomburgk, Coll. Mus. Berlin) of this very doubtful species.

At the present time the black coloration of the pileum, mantle, and scapulars is tinged with brown; but it must be noted that the bird has been mounted and exposed to the light. The rump-patch is also more olive-yellow and extends further up the back than in typical *C. luteola*, and the yellow of the under parts is richer with a tinge of *olive* as in Trinidad examples of that species. On the other hand, the specimen might equally be regarded as one of *C. guianensis*, but with a wing-spot, or as an intermediate or mongrel example on the boundary-line of the two species.

It is interesting, as bearing on this last statement, to note that Sclater and Salvin (P. Z. S. 1867, p. 570) called attention to a bird from Cobati, Rio Negro, which "shows a small white wing-spot," and suggest that it might be correctly referable to *C. guianensis.* We may therefore regard the so-called species *C. major* as having probably been founded upon a few mongrel examples obtained on the border-line between the areas of distribution of *C. luteola* and *C. guianensis,* and for this reason it would seem advisable to sink the name altogether or regard it as a synonym of *C. luteola* or *C. guianensis.*

CŒREBA LUTEOLA MONTANA, subsp. nov.

Type. Ad. ♂, 20.ii.97, Merida (1600 metres), Briceño coll. in Mus. Rothschild., Tring.

Measurements. Bill 14 mm. (exposed culmen); wing 62 mm.; tarsus 16 mm.

I have examined a series of nineteen specimens from the mountainous district of Merida (Western Venezuela) contained in the collection of Mr. Walter Rothschild at Tring. These birds are darker and richer than typical specimens of *C. luteola* (Cumaná) and have the coloration of the rump more *olive* yellowish. They have also obviously larger bills (average 14 mm., as compared with 11 mm. in typical specimens), and the wings are noticeably larger. The throat-patch is dark ashy grey as compared with light ashy in typical *C. luteola.* It is highly probable, therefore, that the birds which inhabit the main mountain-chains of Venezuela are generally larger and more richly coloured than those of the coast district, as I have already pointed out in the case of Trinidad birds ('Ibis,' 1907, p. 566). I have therefore deemed it advisable to distinguish this mountain race from the Merida and possibly other mountain districts by a definite name.

CŒREBA LUTEOLA HELLMAYRI.

Cœreba luteola trinitatis Lowe, Ibis, Oct. 1907, p. 566.

Cœreba luteola hellmayri Riley, Proc. Biol. Soc. Wash. xxiii. p. 100 (1910).

Hab. Islands of Trinidad and Tobago.

Specimens examined. Nineteen adults from Trinidad in

Coll. Rothschild; ten from Tobago and Trinidad in Coll. P. R. L.

If a fairly large series of birds from these two islands is compared with a similar series from or near the typical locality they are easily seen to be of a deeper and richer coloration, both above and below, and to have larger measurements. The grey of the throat-patch is also darker.

CŒREBA CERINOCLUNIS.

Cœreba mexicana columbiana Bangs, Auk, xviii. 1901, p. 30 (San Miguel Island, Panama).

Cœreba cerinoclunis Bangs, Proc. New Engl. Zool. Club, ii. 1901, p. 52 (San Miguel Island, Panama, Coll. E. A. & O. Bangs); Ridgway, Birds N. & M. Amer. pt. ii. 1902, p. 408.

Hab. Island of San Miguel, Bay of Panama, Columbia.

I have not seen an example of this species. Judging by Mr. Bangs's description the upper parts differ from *C. mexicana* in being sooty black (as in *C. luteola*); the rump is olive-yellow, becoming purer yellow below; there is a large and conspicuous white wing-spot, and the yellow of the under parts is of a bright lemon coloration (*cf.* Ridgw. *l. c.*).

From the description, therefore, it is obvious that this species is quite distinct from *C. mexicana* and rather close to *C. luteola*.

CŒREBA GORGONÆ.

Cœreba gorgonæ Thayer & Bangs, Bull. Mus. Comp. Zool. Harvard, vol. xlvi. p. 97.

Type. Coll. E. A. & O. Bangs. Gorgona Island, 1904.

Wing, ♂ ♂, 55·5–57·5 mm.; culmen 13–13·5 mm.

Hab. Gorgona Island, West Coast of Columbia.

Mr. Bangs says of this species, which I have never seen: "A very distinct species, nearest to *C. cerinoclunis* Bangs, of the Pearl Islands, Bay of Panama. Differs in the much smaller—reduced to a mere dot—white wing-spot, much deeper black back, darker grey throat, darker and more greenish-yellow belly, and in having a greenish band bordering the grey of the throat below; size about the same; rump-patch olive-yellow. . . . In its dark grey throat and jet-black upper parts it resembles *C. luteola*."

CŒREBA FLAVEOLA.

[*Certhia*] *flaveola* Linnæus, Syst. Nat. ed. x. i. 1758, p. 119 (based on *Luscinia s. Philomela e fusco et luteo varia* Sloane, Nat. Hist. Jamaica, p. 307, pl. 259. fig. 3).

Nectarinia antillensis Less. Traité d'Ornithologie, 1830, p. 3. Figured, Atlas, pl. 75. fig. 2, but white wing-spot missing.

Cœreba flaveola Ridgw. Birds N. & M. Amer. pt. ii. 1902, p. 414.

Hab. Island of Jamaica.

15 ♂♂ & ♀♀. Brit. Mus.

14 ditto. Coll. Rothschild.

4 ♂♂ & 6 ♀♀. Coll. P. R. L.

With this species, which is the type of the genus, we now pass on to consider a series of insular forms inhabiting the Greater and Lesser Antilles, the Bahamas, and a few islands bordering the mainland in the Caribbean basin.

CŒREBA BANANIVORA.

Motacilla bananivora Gmelin, Syst. Nat. i. pt. ii. 1788, p. 951 (St. Domingo; based on *Bananiste* Buffon, Hist. Nat. Ois. v. p. 332).

Cœreba bananivora Ridgw. Birds N. & M. Amer. pt. ii. 1902, p. 411.

Hab. Island of Haiti (Greater Antilles).

6 ♂♂ & ♀♀. Coll. Brit. Mus.

5 ditto. Coll. Rothschild.

6 ♂♂ & 3 ♀♀. Coll. P. R. L.

It is to be noted that the outer webs of the outermost rectrices in this species do not exhibit any white coloration, in which it conforms to the continental arrangement, and differs from all other Greater Antillean species. The pileum of adult birds is plain black, while the back is somewhat lighter, sooty black, and the loral, suborbital, and auricular regions are plain black as in the pileum (*cf.* Ridgway).

CŒREBA PORTORICENSIS.

Certhiola portoricensis Bryant, Proc. Bost. Soc. Nat. Hist. x., Jan. 1866, p. 252 (Porto Rico; Coll. U.S. Nat. Mus.).

Cœreba portoricensis Ridgway, Birds N. & M. Amer. pt. ii. 1902, p. 412.

Certhiola sancti thomæ Sundevall, Œfv. K. Vet.-Ak. Förh. Stockh. 1869, p. 621 (St. Thomas).

Hab. Puerto Rico, Vieques, Culebra, St. Thomas, and the Virgin Islands.

32 specimens in Coll. Brit. Mus.

9 ditto in Coll. Rothschild.

8 ♂♂ & 8 ♀♀. Coll. P. R. L.

Examples from Puerto Rico tend to have a deeper shade of yellow on the under parts (yellow-ochre) as compared with those from St. Thomas and the neighbouring Virgin Islands, in which the yellow is lighter and clearer.

The coloration of the upper parts, also, in Puerto Rican examples is pure black, as compared with sooty black in adult specimens from St. Thomas, and the wing-feathers of the latter birds tend to be edged with lighter.

Considering the far more arid conditions which now obtain in St. Thomas, this is what one might have expected; and although Sundevall's name of *sancti-thomæ* was probably founded on immature specimens with the yellow eye-stripe and the greyish-brown backs, I have been tempted to restore his name for the St. Thomas and Virgin Island birds, and to make them a subspecies of *C. portoricensis* from Puerto Rico. The fact, however, that a series of thirteen birds, taken by me in St. Thomas in the month of January, all present a paler appearance on the upper parts than in the case of a series of nine taken by Mr. M. J. Nicoll on the same island in February, causes me to wonder if the paler appearance of St. Thomas Island birds examined by me is not due to a seasonal change; and this opinion is strengthened by the examination of two examples from Virgin Gorda and one from Anegada taken in the months of November and December respectively, in which the upper parts are paler still than in January specimens from St. Thomas.

Except for their paler throat-patches these Virgin Gorda and Anegada specimens come very near to examples of *C. newtoni* from the island of St. Croix, and they have the same shade of olive-green in the coloration of the rump. Gundlach (J. f. Orn. 1878, p. 179) describes nests and eggs of specimens from Porto Rico. He says the nests can be found all the year round, but very seldom do they contain eggs or young. He thinks that the nests are often used as sleeping-places. On March 15th he found freshly hatched young, and again in the autumn freshly flown young. In December, 1903, on the island of St. Thomas, the late Dr. Bowdler Sharpe and I shot birds in first plumage with yellow eye-stripe and grey of throat mottled with yellowish; the upper parts being hair-brown, with pale edges to wing-feathers and scapulars.

CŒREBA NEWTONI.

[*Certhiola*] *newtoni* Baird, Am. Nat. vii. 1873, p. 611 (St. Croix, Greater Antilles; Coll. U.S. Nat. Mus.).

Cœreba newtoni Ridgway, Birds N. & M. Amer. pt. ii. 1902, p. 416.

Hab. St. Croix, Greater Antilles.

8 adult specimens in Coll. Brit Mus.

In this well-marked species the yellow of the breast is a rich yolk-of-egg colour, and the yellow of the rump-patch is distinctly tinged with olive-green. The white wing-patch is quadrate—that is to say, the outer webs at the bases of the primaries are not involved in the white coloration.

I cannot agree with Prof. Baird that the throat is so dark that it does not present any contrast with the black of the cheeks. The coloration of the throat-patch is almost exactly identical with that seen in *C. bananivora*. It is paler than *C. flaveola*, and darker than in *C. portoricensis*.

The pileum is nearly, if not quite, black; the mantle smoky black or sooty grey; the secondaries have conspicuous light edges.

Thus the upper parts of *C. newtoni* more closely resemble birds from St. Thomas and the Virgin Islands than examples of *C. flaveola,* with which this species is compared by Ridgway (*loc. cit.*). It is to be noted that birds from Puerto Rico do not present the pale edgings to the remiges seen in *C. newtoni* and in birds from St. Thomas and the Virgins.

As regards the breeding-habits of this bird, Newton ('Ibis,' 1859, p. 67) states that "it appears to breed from March to August." He then gives a description of the nest.

CŒREBA BAHAMENSIS.

Certhiola bahamensis Reichenbach, Handb. i. 1853, p. 253 (based on *Certhia bahamensis* Catesby, Nat. Hist. Carolina, i. pl. 59).

Cœreba bahamensis Ridgw. Birds N. & M. Amer. pt. ii. 1902, p. 401.

Hab. Bahama Islands.

32 ♂♂ & ♀♀. Coll. Brit. Mus.

6 ditto. Coll. Rothschild.

2 ♂♂. Coll. P. R. L.

The wings of Bahaman birds average larger (66–63 mm.) than in any other species of the genus except *C. tricolor,* and the colour of the throat-patch is paler, being of the palest ashy white. The arrangement of the yellow coloration of the under parts also enables this species to be easily identified at a glance from all other species. It commences further down over the thoracic region (not at junction of throat and thorax), and ends sooner and more abruptly over the abdomen. It is therefore much more restricted, and the effect produced is that of a centrally disposed band of yellow with well-defined upper and lower borders.

The lower abdomen, crissum, and under tail-coverts are also, in marked contrast with all other species of the genus, ashy white; so that there seems as much of this colour behind the yellow band as in front of it, an arrangement which distinguishes *C. bahamensis* at a glance.

Todd and Worthington (Annals Carnegie Mus. vol. vii. nos. 3–4, 1911) state that the birds of Great Inagua have larger bills than those from the more northern Bahamas [17 mm. as compared with 14·6 mm. (average)]; but the size of those I have examined appear to vary, and in some cases the bills of birds from other islands are as large as those from Great Inagua. It is interesting to note that stragglers from the Bahamas have, or had established themselves on Indian Key, Florida, and have been described as *C. bairdii* (Cabanis, Journ. für Orn. 1865, p. 412).

CŒREBA SHARPEI.

Certhiola sharpei Cory, Auk, iii., Oct. 1886, p. 497.

Cœreba sharpei Ridgw. Birds N. & M. Amer. pt. ii. 1902, p. 404.

Hab. Grand Cayman, Little Cayman, and Cayman Brac Islands (south of Cuba).

Wing-measurements of 9 specimens average from 60–62·5 mm.

38 ♂♂ & ♀♀. Coll. Brit. Mus.

8 ditto. Coll. Rothschild.

5 ♂♂, 5 ♀♀. Coll. P. R. L.

In this species the smoky grey of the throat-patch is continued well on to the thorax, being, in this respect, intermediate between *C. bahamensis* and *C. tricolor*. In *C. caboti* the ashy white is nearly confined to the throat.

The bill is larger than in *C. caboti*, and the yellow coloration of the underparts is continued posteriorly as in *C. caboti* and *C. tricolor*.

The light edgings to the wing-feathers are not nearly so pronounced as in *C. bahamensis*.

The distribution of the white coloration on the outer rectrices conforms to the Antillean type.

The following field-notes relative to the habits of *C. sharpei* have lately been communicated to me by Mr. Savage English, of the Grand Cayman Island:—Breeding season from end of December to July. There are certainly two broods, and probably three. Any sort of tree or bush is made use of in the matter of nest-building. Mr. English has found nests in the "Lady's hair," "a most villainous plant, with leaves covered with loose stinging hairs." The nest is placed, as a rule, near the end of a branch, the materials used being vegetable fibres or grass with an intermixture of silk cotton from Asclepias seeds, and almost always some pieces of bark of the "West Indian Birch" (*Bursera gumnifera*). The nest is in the shape of a deep cup or retort, and the same material is used throughout the nest. The entrance is about halfway up from the base of the nest, and is overhung by a kind of pent. Three eggs are usually laid, pink when unblown, with dark spots—very like a Chiffchaff's.

The bird has the Wren's habit of building several nests for other reasons than egg-laying. Its food consists of small insects and the sugary secretions of the inside of flowers. The holes left in the base of the tube-shaped flowers are made by the bird's claws and not by the bill as is generally supposed. The movements of the bird generally are those of a Titmouse.

COEREBA CABOTI.

Certhiola caboti Baird, Am. Nat. vii., Oct. 1873, p. 612 (Cozumel Island, Yucatan; Coll. Dr. S. Cabot).

Cœreba caboti Ridgway, Birds N. & M. Amer. pt. ii. 1902, p. 404.

Hab. Island of Cozumel, Yucatan (east coast).

23 ♂ ♂ & ♀ ♀. Coll. Brit. Mus.

Wing-measurements of 10 ♂ ♂ average from 60–62 mm.

This bird has been described as if its nearest ally were *C. bahamensis*, and therefore surprise has been expressed that the island of Cuba (on which no *Cœreba* is found) should intervene as a remarkable gap between the distribution of these two birds. But in *C. caboti* the yellow coloration of the underparts is continued much further back and on to the flanks, gradually merging into the buffy yellow of the crissum and under tail-coverts as in *C. sharpii*. Moreover, in *C. caboti* the distribution of the white coloration on the inner and outer webs of the lateral rectrices conforms to the arrangement characteristic of *continental* species of the genus and the ashy white of the throat is not continued nearly so far back as in *C. bahamensis*.

Unless the winter climate of Cuba is of such a nature as to negative the existence of the genus upon it, it is difficult to believe that birds carried by the trade-winds from the Bahamas could have established themselves on Cozumel (or the Caymans) without also colonising Cuba. As it is, there seem to be no records of even casual stragglers from the latter island. Indeed, in all the West Indian Islands I have never met with an alien species, and have only come across a single instance of this in records, viz., in the case of an example of *C. luteola* having been described as a new form in Grenada under the name of *C. godmani*. My impression is that in the case of this very sedentary genus the only channels by which the West Indian Islands were originally colonised was by way of ancient land-connections only.

It therefore seems more likely that *C. caboti*, *C. sharpii*, and *C. tricolor* are insular relics of a Central-American race which flourished at some period when Central America consisted of a series of large islands. Chapman (Bull. Amer. Mus. Nat. vol. iii. 1896, p. 273) states that there are "from fifteen to twenty forms peculiar to Cozumel. As might be supposed, the larger number of these are derived from the contiguous mainland (ten miles distant); but one species has no close relative nearer than Panama, another is not represented, even generically, nearer than Vera Cruz (Mexico), while several are representatives of genera peculiar to the West Indies." It seems probable therefore that Cozumel did not share in the submergences which have affected Yucatan.

CŒREBA TRICOLOR.

Certhiola tricolor Ridgway, Proc. U.S. Nat. Mus. vii., July 29, 1884, p. 178 (Old Providence Island, Caribbean Sea; Coll. U.S. Nat. Mus.).

Hab. Old Providence Island, Caribbean Sea.

3 ♂ ♂ & ♀ ♀. Coll. Brit. Mus.

The wings of two males of this very peculiar species both measured 68 mm.: bills 14 mm. In this species, therefore, and in some examples from the Bahamas we get the largest wing-measurements met with in the genus. The yellow coloration of the underparts is produced posteriorly as in *C. sharpii* and *C. caboti*, but is of a clearer lemon-yellow.

The outermost rectrices, as regards the arrangement of the white coloration, conform to the Antillean type (cf. *C. caboti*).

The greyish-white throat-patch does not extend so far down on to the thorax as in *C. bahamensis*.

CŒREBA BARTOLEMICA.

Certhia bartolemica Sparrman, Mus. Carls. fasc. ii. 1788, pl. 57 (St. Bartholomew).

Cœreba bartolemica Ridgw. Birds N. & M. Amer. pt. ii. 1902, p. 419 (Islands of St. Bartholomew, St. Eustatius, Anguilla, and Saba; Lesser Antilles).

Certhiola bartolemica Sclater, Cat. Birds, vol. xi. p. 42 (Island of St. Bartholomew): P. Z. S. 1892, p. 199 (Anguilla).

Hab. St. Bartholomew, St. Martins, Anguilla, and Saba Islands (Lesser Antilles); also ? Antigua, ? Barbuda, and ? St. Eustatius Islands (Lesser Antilles).

9 adult specimens. Coll. Brit. Mus.

11 ditto (Barbuda and Antigua). Coll. Rothschild.

Owing to lack of material, our knowledge of the distribution of this species is involved in a good deal of doubt. Sparmann described his bird "ex ins. St. Bartholemé communicavit D:nus Fahlberg." Unfortunately this was an immature specimen, to which his description and plate bear obvious testimony. In his plate this young bird is drawn without any indication of a wing-spot and with the yellow superciliary stripe extending forward to the frontal region *over and beyond the eye*. There is no indication of a frontal band of white. In his description there is also *no mention of a wing-spot*, a character upon which stress has been laid as one of the distinguishing characteristics of this species.

I have never seen an example from St. Bartholomew

Island, but judging from specimens obtained from neigbouring islands, if these are really *C. bartholemica,* the presence of a white wing-spot would appear to be an inconstant character. In this connection it may be interesting to quote Dr. Allen's remarks on a splendid series of 72 specimens of *C. chloropyga* (a wing-spotless species) from Chapada in the Matto Grosso province of Brazil (Bull. Amer. Mus. N. H. vol. iii. 1890–91, p. 348). He says: "about one specimen in ten of the adults shews a slight trace of white beyond the primary wing-covert, but only in about one in twenty is it distinct enough to readily attract attention." Possibly there is the same inconstant tendency in *C. bartolemica*, and in the normal condition the species is without a wing-spot.

As I have before remarked, it is, with the material at hand, somewhat difficult to define the limits of this species. In two specimens from Anguilla, which I have examined, the white superciliary stripe does not extend anterior to the eye; they both have conspicuous white frontal bands, and there is a small white wing-spot just visible in both. I have little doubt that Anguilla specimens can be referred to *C. bartolemica.* As regards examples from Antigua, which lies on a different submarine plateau, I have examined 12 specimens and they are all distinctly paler above and below than specimens from Dominica (19 specimens), Guadeloupe, and St. Kitts (*C. b. dominicana*). The mantle is sooty grey; wings conspicuously tipped with greyish; pileum distinct from mantle; yellow of underparts paler and clearer than in birds from Dominica; and two specimens shew slight signs of a wing-spot.

Probably these Antiguan examples are referable to *C. bartolemica,* but should they be proved to be distinct I propose the name *C. atlantica* for them. Specimens from Barbuda in the British Museum and Tring collections also agree with those from Antigua. Both Antiguan and Barbudan examples are distinguishable at a glance from examples from Dominica. It should be noted that both these islands are covered with limestone formations and that in their geological characters they are quite distinct from the volcanic islands of Dominica and Guadeloupe.

I am doubtful of the status of the only specimen I have seen from Eustatius, but it appears to be referable to *C. bartolemica*, and is not like examples from St. Kitts and Montserrat, which agree with those from Dominica.

Regarded in the light of the geological characters of these more northern Lesser Antillean Islands and in relation to the submarine contours which surround them (*cf.* more especially papers by Spencer, Trans. Can. Instit. vol. vii. Dec. 1901), the study of the distribution of *C. bartolemica* and its subspecies *C. bartolemica dominicana* possesses considerable points of interest. A study of the distribution of the land-mollusca in these islands is also interesting in this connection (*cf.* Bland, Proc. Amer. Phil. Soc. Philad. vol. xii. p. 56, 1871).

CŒREBA BARTOLEMICA DOMINICANA.

Certhiola dominicana Taylor, Ibis, 1864, p. 167 (Dominica: Coll. P. L. Sclater); Sclater, Cat. Birds Brit. Mus. vol. xi. p. 44 (*Hab.* Dominica, Montserrat, Antigua, and Barbuda).

Cœreba bartholemica Cory, Cat. W.I. Birds, 1892, p. 116 (St. Christopher, Nevis, Barbuda, Antigua, Guadeloupe, Dominica).

Cœreba dominicana Ridgw. Birds N. & M. Amer. pt. ii. 1902, p. 417 (Islands of Dominica, Guadeloupe, Nevis, Barbuda, and Antigua: also Anguilla, Marie Galente, Desirade, St. Christopher, and Montserrat).

25 ♂♂ & ♀♀. Coll. Brit. Mus.

12 ditto. Coll. Rothschild.

4 ditto. Coll. P. R. L.

Hab. Islands of Dominica, Guadeloupe (? Grande Terre, ? Marie Galante, ? Desirade, ? Petite Terre), Montserrat, Nevis, St. Christopher, and ? Eustatius (Lesser Antilles).

Nineteen specimens from Dominica (including the type of *C. dominicana*) and others from the islands of Montserrat and St. Christopher differ from examples from the Lesser Antillean islands further north in being darker and richer in coloration above and below, and in lacking the light edges to the secondary wing-feathers.

When we consider the recent volcanic nature, greater humidity, and greater extent of dense and almost primæval forests which characterise the islands of Dominica and Guadeloupe, and to a less extent those of Montserrat, Nevis, and St. Kitts, the darker and richer coloration of these birds is not surprising.

Mr. Cory (Cat. W.I. Birds, 1892, p. 155) considers that Marie Galante and Desirade are inhabited by *C. bartolemica*, that is to say by the *paler* form described by Sparmann, which again is not surprising, as these islands consist of pure limestone formations similar to those of Antigua and Barbuda.

Probably the part of Guadeloupe known as Grand Terre and the small island of Petite Terre, which are also of the same limestone formations, support this pale race.

It is to be noted that in nearly every example of the nineteen specimens examined from Dominica the white eye-stripe stops short just behind or just above the eye (as in *C. bartolemica*), and that this is better noticed when the white frontal band is absent. In thirteen out of nineteen Dominican birds this frontal band was present. Birds from St. Kitts, Montserrat, Antigua, Barbuda, Anguilla, and Eustatius all shew it, so that neither the eye-stripe nor the frontal band can be considered as of any value in distinguishing the two races.

CŒREBA MARTINICANA.

Certhiola martinicana Reichenbach, Handb. d. Spec. Orn. i. 1853, p. 252, pl. 561. fig. 3824 (*ex* Brisson).

Cœreba martinicana Ridgw. Birds of N. & M. Amer. pt. ii. 1902, p. 421.

Hab. Islands of Martinique and Santa Lucia (Lesser Antilles).

15 adult specimens. Coll. Brit. Mus.

30 ditto. Coll. Rothschild.

1 ditto (S. Lucia). Coll. P. R. L.

This and the following two species are remarkable for exhibiting a more or less defined and centrally disposed patch of white on the otherwise nearly black throat.

In *C. martinicana* the coloration bears evidence of the effects of the humidity obtaining in the densely forested and mountainous islands in which it is met with.

The pileum, mantle, &c. are dark sooty black as compared with a sooty slate coloration in *C. barbadensis* and *C. uropygialis*.

The rump is olive-green and more restricted than in its nearest allies, in which the coloration is olive yellowish.

The eye-stripe in *C. martinicana* does not extend so far back as in *C. barbadensis* or *C. uropygialis*; the underparts are more tinged with olive, the yellow coloration being duller than in *C. barbadensis*, and nothing like so clear and bright as in *C. uropygialis*.

In *C. martinicana* the malar stripe of grey is absent, and the white on the throat is larger and more defined than in either of the two other allies.

CŒREBA BARBADENSIS.

[*Certhiola*] *barbadensis* Baird, Am. Nat. vii., Oct. 1873, p. 612 (Barbados, Lesser Antilles; Coll. U.S. Nat. Mus.).

Cœreba barbadensis Ridgw. Birds N. & M. Amer. pt. ii. 1902, p. 420.

Hab. Island of Barbados.

8 adult specimens. Coll. Brit. Mus.

3 ditto. Coll. Rothschild.

7 ♂♂ & 6 ♀♀. Coll. P. R. L.

In *C. barbadensis* the coloration is lighter above and clearer and brighter yellow below than in *C. martinicana*. The rump is olive-yellow instead of olive-green; the white of the throat-patch is smaller and the lateral rectrices are broadly tipped with white on both webs (Antillean characteristic). There is a smaller stripe of grey not seen in *C. martinicana*.

CŒREBA UROPYGIALIS.

Cœreba uropygialis Berlepsch, Journ. für Orn. xl. 1892, p. 77 (Island of Curaçao, Caribbean Sea; coll. E. Peters); Ridgw. Birds N. & M. Amer. pt. ii. 1902, p. 421 (Island of Curaçao); Cory, Field Mus. Nat. Hist. Publ. no. 137, Ornith. vol. i. no. 5, pp. 202, 208, 213.

Certhiola uropygialis Hartert, Ibis, 1893, pp. 295, 312, 327.

Hab. Islands of Curaçao, Bonaire, and Aruba, D.W.I., Venezuela.

23 adults. Coll. Rothschild.

2 adults. Coll. Brit. Mus.

5 ♂♂ & 1 ♀. Coll. P. R. L.

This species, as we should expect from the arid condition and somewhat scrubby nature of the forest in Curaçao, is paler above than in *C. martinicana* (a dark sooty slate as compared with dark sooty black), but the yellow of the underparts is strikingly bright and clear. The rump is more extensively coloured than in *C. martinicana* or *C. barbadensis*, and is bright olive-yellow instead of dull olive-green. The secondaries and tertials are more or less broadly edged with light greyish, which distinguishes it from either of its two other allies. In *C. barbadensis* there is a slight indication of this.

CŒREBA SACCHARINA.

Certhiola saccharina Lawrence, Ann. N.Y. Acad. Sci. i. 1878, p. 151 (St. Vincent, Lesser Antilles; Coll. U.S. Nat. Mus.).

Cœreba saccharina Ridgw. Birds N. & M. Amer. pt. ii. 1902, p. 415 (St. Vincent and Grenada); Lowe, Ibis, 1909, p. 309.

Cœreba atrata (normal form) Austin Clark, Auk, xxiii. p. 392 (St. Vincent).

Cœreba wellsi (normal form) Austin Clark, Auk, xxiii. p. 392 (Grenada).

Hab. Islands of St. Vincent, Grenada, and the Grenadines.

2 ♂♂. Grenada. Coll. Brit. Mus.
4 ♂♂ & ♀♀. Grenadines. Coll. Brit. Mus.
4 ♂♂ & ♀♀ (2 juv.). Grenada. Coll. P. R. L.

With such scanty material to work on, it would be rash to speculate on the question as to whether the normally coloured birds now known as *C. saccharina* and found in the islands of St. Vincent and Grenada are of one and the same species. The fact that *C. saccharina* flourishes in the intermediately situated Grenadines seems to point to the conclusion that they are. It is to be remarked that *C. saccharina* exhibits a well-marked and constant white wing-spot, which is not a Lesser Antillean characteristic, and that the amount of white on the outer webs of the lateral rectrices is so faint (or so nearly absent) as to conform to the continental arrangement; from both of these facts it would appear probable that *C. saccharina* represents a comparatively recent invasion from the continent. It seems difficult, therefore, to believe that the two black forms of *C. saccharina* found in the islands of St. Vincent and Grenada (*C. atrata* and *C. wellsi* respectively) are melanistic phases of two different species (*cf.* Austin Clark, *loc. cit.*). In point of fact, I am unable to detect any difference between examples of *C. saccharina* inhabiting Grenada and those found in the Grenadines.

I shot four examples of *C. saccharina* on Grenada, and the late Dr. Bowdler Sharpe shot another in my presence; but I have never handled a St. Vincent specimen and have only seen one alive. The British Museum collection does not contain a specimen from St. Vincent and only one from Grenada. There is one specimen from St. Vincent in the United States National Museum and one from Grenada.

There is reason to suppose that the extreme rarity of the normally coloured form on St. Vincent (amounting now to practical extinction) is a matter of comparatively recent date.

It is so rare, too, on Grenada that Mr. Wells, a Grenada naturalist, "who lived nearly all his life on the island," had never met with one, and the only authentic specimen that he knew of was shot in the spring of 1904 by Mr. Charles Vernet of St. George's.

Cœreba atrata.

Certhiola atrata Lawrence, Ann. N.Y. Acad. Sci. i. no. 5, 1878, p. 150 (St. Vincent).

Cœreba atrata Ridgw. Birds N. & M. Amer. pt. ii. 1902, p. 422.

Cœreba atrata (Black form) Austin Clarke, Auk, xxii. p. 393.

Hab. Island of St. Vincent, Lesser Antilles.

Measurements. Wings of 12 ♂♂ average 61–63 mm. (one 65 mm.). Bills average larger than in *C. wellsi*.

16 ♂♂ & ♀♀. Coll. Brit. Mus.

6 ♂♂ & 2 ♀♀. Coll. P. R. L.

Quite a common bird on St. Vincent. This and the next three species are melanistic phases of the normally coloured types of the genus. The explanation of their occurrence in such dominating numbers on all the four islands on which they have now been found to flourish is a problem of genetics of extreme interest. Whether these melanistic phases have arisen in quite recent times there seems to be no evidence to shew, but that they are dominant races is evident. According to Ober, the normally coloured form was once met with on St. Vincent in sufficient numbers to be noticeable.

There is no evidence whatever to enable us to say how long the black phases have inhabited the Los Testiges or the Los Roques groups of islands (see below); but bearing in mind the very recent origin of melanistic phases of British moths, noticeably in the case of *Amphidasys betularia* since 1850 (see L. Doncaster, 'The Entomologist's Record,' vol. xviii. no. 7), it is impossible to refrain from speculation as to whether these black forms of *Cœreba* have not come into existence in similarly recent times. Against this supposition is the fact that no intermediate forms have been met with, so far as I am aware. Moreover, on the two groups of islands just mentioned, no normally coloured forms have as yet been met with.

As regards local conditions as a predisposing cause, it is only necessary to mention the totally different geological and other conditions obtaining in St. Vincent and Grenada as compared with those on the Venezuelan Islands.

Prof. Bateson informs me that he is of opinion "that it is scarcely possible that the difference (between the two forms) is brought about by loss of any factor already possessed by the type and that the black form differs from the normal in possessing one factor more. As to how a new factor comes to be added there is no evidence whatever."

Prof. Bateson goes on to add:—"The further difficulty remains, that in view of the extreme isolation of the colonies—proved by the fact that almost every island (in the West Indies) has its own type—we are driven to suppose that the assumption of the factor of black has independently come to pass on St. Vincent, Grenada, the Testigos, and Los Roques. This is a very serious difficulty; but I think it must be faced, for if a black form could have in any way travelled from the place of first origin, then such intercommunication between the islands must be supposed to be not very difficult: for at least four localities are affected. This would be incompatible with the development of such definite island forms and especially with the absence of black phases on the Grenadines."

CŒREBA WELLSI.

Certhiola wellsi Cory, Auk, vi. 1889, p. 219 (Grenada, Lesser Antilles; Coll. C. B. Cory).

Cœreba wellsi Ridgw. Birds N. & M. Amer. pt. ii. 1902, p. 423.

Cœreba wellsi (Black form) Austin Clarke, Auk, xxii. p. 393.

Hab. Island of Grenada, Lesser Antilles.

Measurements. Wings of 7 ♂♂ average from 59–61 mm. Bills average smaller than in *C. atrata.*

11 ♂ ♂ & ♀ ♀. Coll. Brit. Mus.

4 ♂ ♂ & ♀ ♀. Coll. P. R. L.

A very common bird in suitable localities on Grenada.

CŒREBA LAURÆ.

Cœreba lauræ Lowe, Bull. B. O. C. vol. xxi. p. 108 (1908); Ibis, April 1909, p. 320; Cory, Field Mus. Nat. Hist. no. 137, Ornith. vol. i. no. 5, p. 232 (1910), "Birds of the Leeward Islands."

Hab. Los Testigos Islands, Venezuela.

4 ♂ ♂ & 5 ♀ ♀. Coll. P. R. L.

Measurements. Wings, ♂ ♂, average = 62 mm.; exposed culmen = 14·5 mm.

This is another black form of *Cœreba.* The bills of Los Testigos birds are obviously stouter and less curved than in *C. atrata* or *C. wellsi.*

There is no brightly coloured tumid rictus in fresh specimens in birds from St. Vincent and Grenada. In this connection it is interesting to note that Taylor ('Ibis,' 1864, p. 81), remarking upon *C. luteola,* which is found upon the neighbouring mainland, opposite the islands, says:—"This continental species differs from *C. flaveola,* and the other species inhabiting the Antilles, in being smaller and in *not having the prominent pink lips at the gape* which form so conspicuous a feature in them."

I have already stated in the 'Ibis' (*l. c.*) that this absence of the tumid rictus does not appear to be connected with the non-breeding season, for the generative organs of my Testigos birds were about to function.

Newton also ('Ibis,' 1859, p. 67), in discussing the bright pink rictus of the *Cœreba* on St. Croix, says:—"These are brightest in the adult, *but are also very conspicuous in the young bird*" (italics mine).

Bearing in mind Taylor's remarks about the absence of the brightly coloured tumid rictus in *C. luteola,* the point arises—is *C. lauræ* a melanistic form of *C. luteola* from the mainland?

The bird is quite common on the largest island of the group.

CŒREBA LOWII.

Cœreba lowii Cory, Field Mus. Nat. Hist. Publ. no. 137, Ornith. vol. i. no. 5, p. 217 (1910).

Hab. Los Roques Islands, Venezuela.

This is another melanistic variation of the normally coloured type. I have never seen a specimen. Mr. Cory (*l. c.*) says :—"Is similar to *C. wellsi*, but differs in having the back distinctly more grey than the crown, not uniform as in *C. wellsi*, and the underparts more decidedly olive-green. In the four specimens taken, the dried skins shew every indication of a tumid rictus, which does not shew at all in specimens of *C. lauræ* from Los Testigos."

No notes were taken by the collector as to the colour of the rictus in life.

CŒREBA FERRYI.

Cœreba ferryi Cory, Field Mus. Nat. Hist. Publ. no. 137, Ornith. vol. i. no. 5, p. 221 (1910).

Hab. Tortuga Island (east of Margarita Island), Venezuela.

Measurements of type. Wing 57·2 mm.; culmen 9·6 mm.

Mr. John Ferry procured eleven specimens of this new form which I have not had the opportunity of examining. Mr. Cory says :—"Similar in size and coloration to specimens of *C. luteola* from Margarita and coast of Venezuela, but differs in having the entire forehead and front of crown white, and the secondaries and tertials narrowly tipped with white. In the type, the frontal white patch extends upon the crown at least ·30 in. from base of upper mandible, and in none of the series is the white forehead less than ·15 in. in width." According to Mr. Ferry the species is common on the island. Many nests were found, but all empty. This was in February.

In concluding I have to express my grateful thanks to Mr. Charles Chubb for much kind help given to me in the preparation of this paper.

XXV.—*Proceedings at the Annual General Meeting of the British Ornithologists' Union,* 1912.

The Annual General Meeting of the British Ornithologists' Union for 1912 was held at the Offices of the Zoological Society of London (by permission), on May 8th, the President, Dr. F. DuCane Godman, F.R.S., in the Chair.

The Minutes of the last Annual General Meeting were read and confirmed.

The Report of the Committee, which was then read, announced the continued prosperity of the Union during the past year. The Annual Volume of 'The Ibis' for 1911 (the fifty-third of the whole and the fifth of the Ninth Series) had been edited by Dr. P. L. Sclater, F.R.S., and Mr. A. H. Evans, M.A. It contained 802 pages and was illustrated with 11 coloured plates, 1 map, and 21 text-figures.

With much regret the Committee reported the deaths of the following Members since the last Annual Meeting:—James Lumsden, A. R. Momber, Capt. L. A. Williams, and A. D. Millar.

The following gentlemen had resigned:—Lt.-Col. H. F. Barclay, A. M. Chance, Frank Finn, Lord Glenconner, Lt.-Col. A. P. Loyd, C. R. E. Radclyffe, and Sir Henry B. Robertson; and the names of four members had been removed from the List under Rule 6.

At the date of the Meeting the Union consisted of 420 Ordinary Members, 3 Extra-Ordinary, 9 Honorary, 6 Honorary Lady Members, 9 Colonial, and 20 Foreign Members.

The Statement of Accounts for the year ending December 31st, 1911, was then submitted and approved, and a vote of thanks was accorded to Mr. Henry Munt, the Auditor.

The Meeting then proceeded to elect the Officers for the ensuing year, and it was announced that Dr. F. DuCane Godman, F.R.S., had been re-elected President, and Mr. J. Lewis Bonhote. M.A., F.L.S., Secretary; also that Dr. Ernst Hartert had been elected a Member of the Committee in the place of Mr. D. Seth-Smith, who had retired by rotation.

The following 23 gentlemen were then balloted for and elected Ordinary Members of the Union:—Francis R. S. Baxendale; C. William Beebe; Gilbert Blaine, F.Z.S.; Thomas E. Brown; Patrick A. Buxton; George W. Clark; John F. M. Floyd, B.A. (Oxon.); Arthur Foster, M.R.C.S., L.R.C.P.: Philip Gosse; George B. Hony; Capt. Ronald F. Meiklejohn, D.S.O.; L. Beresford Mouritz; Capt. Stanley Pershouse; Herbert W. Robinson; Dr. Victor G. L. van Someren; Charles H. Wells; Max Victor Wenner; Capt. Samuel A. White; Samuel L. Whymper; William A. Wilkinson, F.Z.S.: Martin S. Wood, M.D.: Cecil Woodhouse, M.D.Cantab.; Hugh Wormald.

The question of an Editor for the Tenth Series of 'The Ibis' was discussed and Mr. William Lutley Sclater, on the recommendation of the Committee, was unanimously elected to that post.

It was resolved that a portion of the balance left over from the money collected for the B. O. U. Expedition to New Guinea should be given to an Expedition, under Dr. A. F. R. Wollaston, which was shortly going to the same country.

It was announced that, as a result of further negotiations with the Government and the Public Departments concerned, the northern boundary of the Natural History Museum as fixed in 1899 would be maintained, and the land to the south of it would be available for the extension of the Museum.

The following resolution was agreed to:—

> "That the Committee be empowered to have a Medal struck, to be known as the Medal of the British Ornithologists' Union, and to be available by resolution at a General Meeting for presentation for eminent services to Ornithology."

It was also resolved that Medals be granted to the following Members of the B.O.U. Expedition to New Guinea:—

Gold Medal to Mr. Walter Goodfellow.

Silver Medals to Dr. A. F. R. Wollaston, Mr. G. C. Shortridge, and Mr. Claude H. B. Grant.

A discussion took place on the subject of the date of the Annual General Meeting of the Union, and the following motion was put to the meeting and carried:—

> "That in the opinion of the meeting the Annual General Meeting should be held in February and that the Committee be asked to bring forward the necessary alterations in the Rules at the next General Meeting."

It was further suggested that for next year the Meeting should be held as early as possible in April.

It was stated that the Committee appointed at the last Annual Meeting to bring out a new edition of the 'List of British Birds' published in 1883, had made good progress with the work which, it was hoped, would be ready for press during the winter.

A vote of thanks to the Zoological Society of London for the use of their Office during the past year was unanimously passed, and the Meeting was adjourned.

After the Meeting the Annual Dinner was held, in conjunction with the monthly Dinner of the British Ornithologists' Club, at Pagani's Restaurant, Great Portland Street. Fifty members and guests attended.

XXVI.—*Notices of recent Ornithological Publications.*

[Continued from p. 351.]

50. '*Avicultural Magazine.*'

[Avicultural Magazine. Third Series, Vol. ii, Nos. 11, 12; Vol. iii, Nos. 1–7 (Sept. 1911—May 1912).]

In these parts there are a considerable number of articles of general interest, although naturally in the main devoted to

Aviculture. Mr. R. Phillipps gives us "Further Notes on the Regent Bird," with a description of the "playground," "nuptial bower," nest and eggs, as well as an account of nestlings hatched in confinement: Dr. Bahr writes on the birds he kept in the Fiji Islands and furnishes a coloured plate of the Finch *Erythrura pealei*, besides notes on *Calliptilus solitarius* and *Pyrrhulopsis taviuensis*, which he tells us are three species which have never before been brought alive to England. Mr. H. D. Astley, in describing bird-catching by the "roccolo" in Italy, descants upon the cruelty of the natives; Mr. H. Wormald writes of rearing the Red Grouse in captivity, and notes as points of interest the bird's "display" and the food it will eat. Messrs. Horsbrugh and St. Quintin have a joint paper on the Secretary-Bird; Mr. C. B. Smith one on the "display" of *Ceriornis satyra*; and Mr. E. J. Brook another on Hunstein's Bird of Paradise, with a coloured plate.

Hybrids are the subject of papers by Mr. A. Silver (Finches, with coloured plate of a Brambling and Chaffinch cross), Mr. R. Cosgrave (♂ Canadian and ♀ Wattled Crane), Mr. W. A. Harding (Swainson's and Red-collared Parrakeets), and Mr. J. L. Bonhote (those exhibited at the London Cage-Birds Show), while we may add that the exhibits at other Shows are duly chronicled.

Travel is represented by Mr. Newman's Notes from N.W. Africa, and Mr. Staples-Browne's Diary of Birds seen on the White Nile. Aviary-notes are plentiful, and we may call attention to those of Mr. Dodsworth on the Wedge-tailed Green Pigeon (col. pl.), Mr. C. B. Ticehurst on the Storm-Petrel and Mr. G. H. Gurney on *Guttera pucherani*, though there are many others of almost equal interest; while the periodical accounts of the species in the Zoological Gardens, by Mr. Seth-Smith, are of great value, as enabling us to keep in touch with the doings of the Society, and its latest acquisitions.

The section on practical bird-keeping treats of How to breed Birds (Bonhote), of Tanagers (Townsend), Parrots (Astley), Quails (Seth-Smith), Touracos, Bower-birds and

Birds-of-Paradise (Mrs. Johnstone), the Crow tribe (Meade-Waldo), Insectivorous Birds (Butler), and the feet of Birds (Miss Curey).

51. *Bent on the Birds of the Aleutian Islands.*

[Notes on Birds observed during a visit to the Aleutian Islands and Bering Sea in 1911. By A. C. Bent. Smiths. Misc. Coll., Washington, vol. xxxvi. No. 32. 1912.]

Mr. Bent gives us an account of the birds collected on a voyage up the chain of the Aleutian Islands in the summer of 1911, during which Atka, Kiska, Attu, Tanagra and Alak and the western end of Unalaska were visited. The specimens of birds obtained are referred to about sixty species, and there is a new "subspecies" of Ptarmigan from Tanagra Island. Examples of two other species new to the North American Fauna were collected (*Calliope camskatchensis* and *Emberiza rustica*). The Rustic Bunting, as is well known, is an occasional straggler to the British Islands.

The subspecies of Ptarmigan, *Lagopus rupestris sanfordi*, has been described by Mr. Bent in another paper (Smiths. Misc. Coll. vol. xxxvi. No. 30).

52. *Berlepsch's Revision of the Tanagers.*

[Revision der Tanagriden. Von Hans, Graf von Berlepsch. Sonderabr aus Ber. d. V. Intern. Orn.-Congr. Berlin, 1910, pp. 1161.]

This is a reprint of one of the papers read (or taken as read) at the International Ornithological Congress at Berlin in 1910.

In Sclater's 'Tanagrinarum Catalogus Specificus,' published in 1854, 238 species of this Family were included, and referred to 41 genera. In the eleventh volume of the 'Catalogue of Birds in the British Museum' (1886) 380 Tanagers were admitted, and placed in 50 genera. In the present work Graf v. Berlepsch recognises 555 species, and arranges them in 69 genera. These numbers shew the gradual and satisfactory increase of the number of species of Tanagridæ met with as the progress of discovery has advanced.

There may be still, no doubt, a few forms left in the recesses of Peru and Ecuador, but we suspect that the additions yet to be made will not be very numerous.

Two new genera are proposed by Count v. Berlepsch in the present memoir—*Chrysothlypis* for *Tachyphonus chrysomelas*, and *Erythrothlypis* for *Dacnis salmoni*.

One new species is described, namely *Chlorospingus hondurasianus*, and 17 new subspecies, or "conspecies," as Count v. Berlepsch prefers to call them, namely :—

1. *Euphonia aurea pileata.*
2. ——— *ruficeps exsul.*
3. ——— *violacea magna.*
4. *Calospiza larvata centralis.*
5. *Iridosornis jelskii boliviana.*
6. *Pœcilothraupis lunulata intercedens.*
7. ——— *palpebrosa olivaceiceps.*
8. ——— *palpebrosa cærulescens.*
9. *Compsocoma sumptuosa antioquiæ.*
10. *Lanio versicolor parvus.*
11. *Hemithraupis flavicollis hellmayri.*
12. *Nemosia pileata nana.*
13. *Hemispingus atripileus chlorigaster.*
14. *Buarremon torquatus phygus.*
15. *Psittospiza riefferi boliviana.*
16. *Saltator similis ochraceiventris.*
17. ——— *grandis yucatanicus.*

After a preface, in which many difficult questions relating to the Tanagers are discussed, our author proceeds to the systematic arrangement. He places the curious form *Procnias* at the head of the group, but ranks it as a separate Family "*Procniatidæ.*" If this bird really nests in hollow trees and lays white eggs, it can hardly be associated very closely with the Tanagers.

The systematic list of Tanagers begins with the Euphoniinæ and ends with the thick-billed Pitylinæ. Mr. Ridgway has proposed to transfer the latter group to the Fringillidæ, but Graf v. Berlepsch does not agree to this view. No descriptions are given, though the localities of every species and subspecies are carefully worked out. In spite of this omission, which is much to be deplored, we look upon this essay as a most useful piece of work, which the authors of the proposed history of South American Birds will do well to study carefully. It is based primarily on the collection at Schloss Berlepsch which, as the owner informs us (p. 1906), contains representatives of 490 out of the 555 forms known to him.

53. *Bland-Sutton on the Animals of East Africa.*

[Man and Beast in Eastern Africa. By J. Bland-Sutton, M.R.C.S. Ed. Macmillan & Co. London, 1911. 8vo. 204 engravings on wood.]

This is not a "Bird-book," but it contains a good many stories about birds and other animals, often copied from previous works, and should be read by anyone interested in Eastern Africa. It is not written in the form of a Journal, but contains separate chapters on subjects more or less connected with Zoology, Botany, and Anthropology. The author is evidently a keen observer, and writes well on subjects familiar to him. The "engravings on wood" are in many cases excellent.

The chapters relating to Birds are well illustrated by pictures of Jackson's Whydah-bird (in full male attire shewing off to his troop of modest females), by Colies climbing trees like Woodpeckers, by Kori Bustards with Bee-eaters riding on their backs, and by Nightjars with extraordinary wings and tails. Altogether we have enjoyed reading Mr. Bland-Sutton's volume, and we hope that our readers may do the same.

54. *Bonhote on Colour in Pigeons.*

[On Colour and Colour-pattern Inheritance in Pigeons. By J. Lewis Bonhote and F. W. Smalley. Proc. Zool. Soc. 1911, pp. 601–619, pls. xxiii.–xxvi.]

This is a preliminary account of experiments to throw light on the Inheritance of Colour, which are to be continued in future years. The authors consider that, apart from the results which are in harmony with the Mendelian theory, others occur which point to some law or series of laws overriding and modifying (externally at all events) the Mendelian results. In certain cases a consistent deviation from the expected proportions occurs. The paper should certainly be consulted by all interested in Genetics.

55. *Butler on the Finches and Weaver-birds of the Sudan.*

[The Finches and Weaver-birds of the Sudan, being Notes on the group containing the Birds injurious to grain-crops. By A. G. Butler, Superintendent, Game Preservation Department. Khartoum.]

This is an extract from the Fourth Report of the Wellcome Tropical Research Laboratories at the Gordon Memorial College, Khartoum. It deals with two great Families of Finches (Fringillidæ) and Weavers (Ploceidæ), which are probably by far the largest consumers of corn in the Sudan.

Mr. Butler's essay is written in plain and instructive language, and contains excellent information concerning the 76 species which are accused by the corn-growers of the Sudan of being a pest. But Mr. Butler believes that a very small proportion of them will be found to be appreciably injurious to agriculture. So far as his knowledge goes the damage seems to be done entirely by the Finches, and by the abundant Weaver-birds of the genera *Hyphantornis*, *Xanthophilus*, *Quelea*, and, to a smaller degree, *Pyromelana*.

In an additional note Mr. Butler informs us that, as he has lately discovered, the large Calandra Lark (*Melanocorypha bimaculata*) occasionally commits great destruction in the dura crops.

Two coloured plates in this paper represent *Quelea æthiopica* and *Hyphantornis tæniopterus*.

56. *Clyde-Todd and Worthington on the Birds of the Bahamas.*

[A Contribution to the Ornithology of the Bahama Islands. By W. E. Clyde-Todd and W. W. Worthington. Ann. Carnegie Mus. vii. 1911.]

The Bahama Islands, though belonging to the Neotropical Region, seem to be one of the favourite resorts of our ornithological brethren in America, and indeed well deserve their close attention. After Mr. Riley and Mr. Chapman, Mr. Clyde-Todd has taken up the task of exploration, and with the efficient aid of Mr. Worthington, has secured a valuable series of 591 specimens of birds for the Carnegie

Museum at Pittsburg. Two hundred and two species (including subspecies) have now been recorded from the Bahamas, and although there are probably only a few more insular forms to be discovered, additions may still be made to the list of water-birds and accidental visitors.

Of the two hundred forms already registered in the Bahaman Avifauna about one half are winter-residents, transients on migration, or casual visitors, leaving only about one hundred species known to reside and breed in the islands. Deducting the water-birds and other widely spread species, Mr. Clyde-Todd finds 41 forms the distribution of which within the group is more or less restricted. These again may be divided into two categories, 31 forms confined to the more northern islands and 10 more or less restricted to the more southern and eastern islands. The former of these may be called "Inaguan" and the latter the "Bahaman" Avifauna, although no hard and fast line can be drawn between the two. At the same time it is obvious that the Bahaman Avifauna is not homogeneous, and that the Ornis of the north-western islands resembles that of Cuba more closely than that of the South-eastern group. After a discussion of these and other points about the distribution of Bird-life in the Bahamas, we have a narrative of the expedition from the pen of Mr. Worthington and a systematic list of the 82 species represented in the collection by Mr. Clyde-Todd. It will be observed that in several cases the latter writer does not quite agree with previous authorities as to the validity of some of the "subspecies" that have been instituted for the Bahaman local forms. In some instances it is evident that the differences pointed out are indeed very small and apparently hardly constant.

57. *Du Bois on the Hornbills.*

[Genera Avium, conducted by P. Wytsman. Part II. Bucerotidæ, by Dr. A. Du Bois. Brussels, 1911.]

The Hornbills are clearly divisible into two subfamilies—the Ground-Hornbills (Bucorvinæ) and the Tree-Hornbills (Bucerotidæ). Of the former there are only two well-marked species and a somewhat doubtful third. Of the latter subfamily, M. Du Bois recognises 16 genera and many species. All the genera and species are shortly diagnosed, and their distribution is given. Three well drawn coloured plates illustrate some of the more remarkable forms.

58. '*The Emu.*'

[The Emu. A Quarterly Magazine to popularize the Study and Protection of Native Birds. Vol. xi. pts. 3, 4 (Jan., April, 1912).]

In a paper by Mr. A. J. Campbell entitled "Annotations" we have the descriptions of two new species, *Sericornis halmaturina* from Kangaroo Island, and *Pseudogerygone jacksoni* from Mogil Mogil, N.S.W.; while Mr. H. L. White further describes the nest and eggs of the latter, as well as of *Megalurus striatus* (*cf.* p. 214). Mr. Campbell also withdraws the supposed new species *Eopsaltria hilli* (Emu, vol. x. p. 168).

Mr. McLean continues his account of the Bush Birds of New Zealand, wherein he redescribes the nest of *Acanthidositta chloris*, and informs us of the growing scarcity of *Anthornis melanura*, but says that *Clitonyx albicapilla* is still holding its own. His notes are long and full of interest. Mr. Bassett Hull also adds to his "Avifauna of the New South Wales Islands" as a result of visits to the Tollgate group, where he found *Eudyptula minor*, *Puffinus sphenurus*, and *Pelagodroma marina* breeding, and to the Montague Islands, where he again met with the first two of these species.

Mr. Whitlock gives further notes from the Stirling Ranges, where he has been collecting for Mr. White, especially with regard to the nesting of *Hylacola cauta*, *Calamanthus montanellus*, and *Falcunculus leucogaster*.

Drs. Cleland and Johnston write at length on the red blood-cells of Vertebrates—especially birds; and Dr. Shufeldt on eggs in the collection of Mr. E. J. Court. Shorter notes are furnished on Riverina birds by Capt. White, on *Calamanthus albiloris* by Mr. Chandler, on *Tribonyx mortieri* by Miss Fletcher, and on *Ptilotis cassidix* by Mr. Wilson.

The Eleventh Annual Session of the R. A. O. U. took place at Sydney; and the Report, with the retiring President's Address, is given in full. Mention is made in it of the increased scarcity of *Lopholæmus antarcticus* and of the proposed protection of Birds-of-Paradise in British New Guinea.

59. *Flower on the Giza Zoological Gardens.*

[Zoological Gardens, Giza, near Cairo. Report for the Year 1911. By the Director. Cairo, 1912.]

The thirteenth Annual Report on the progress of the Zoological Gardens at Giza, near Cairo, gives a most satisfactory account of this Institution, which is well known to all visitors to Egypt. Birds are obviously not of such importance in Zoological Gardens as Mammals, and the greater part of the information supplied in this Report relates to the latter. But Birds are by no means forgotten at Giza, especially when Shoe-bills (*Balæniceps rex*) are among the "exhibits."

60. *Hartert on two Paradise Birds.*

[Notes on the Paradiseidæ figured on Plates VII. and VIII. Nov. Zool. xviii. p. 604.]

Coloured figures of *Falcinellus astrapoides* and *Astrapia rothschildi* are now given (see 'Ibis,' 1911, pp. 361, 366). The first of these is a most remarkable bird, only known from the single example at Tring. Of *Astrapia rothschildi* a good series has been received from the Rawlinson Mountains, together with a nest and an egg.

61. *Hellmayr on the Titmice.*

[Genera Avium, conducted by P. Wytsman. Part XVIII. Paridæ, by C. E. Hellmayr. Brussels, 1911. (With three coloured plates.)]

This is a second edition of the memoir on the same subject published in 'Das Tierreich' in 1903.

Mr. Hellmayr divides the Paridæ into six subfamilies—

Parinæ, *Psaltriparinæ*, *Remizinæ*, *Paradoxornithinæ*, *Panurinæ*, and *Certhiparieæ*. He admits 169 species and subspecies of *Parus*, placing all the true British Tits in this genus, and wisely uniting with it such forms as *Lophophanes*, *Cyanistes*, *Pœcile*, and others which have been quite unnecessarily separated. Besides *Parus*, Mr. Hellmayr includes in the Parinæ *Melanochlora*, *Penthornis*, *Aphelocephala*, and *Sphenostoma*.

In the second subfamily (*Psaltriparinæ*) are included the Long-tailed Tits *Ægithaliscus* (with 11 subspecies), *Psaltria* (with 1 species), and *Psaltriparus* (with 9 subspecies).

We now come to the Bottle-tits, of which 11 species and subspecies of *Remiza*, 13 of *Anthoscopus*, 2 of *Auriparus*, and 1 of *Cephalopyrus* are recognised in the present work.

Lastly, the somewhat anomalous group of Crow-tits (*Paradoxornithinæ*) concludes the Parine Series. Though a little eccentric in some parts of their structure (the outer toe in *Cholornis* is reduced to an almost clawless stump), we believe that *Paradoxornis* is more nearly allied to the Tits than to any other birds. Mr. Hellmayr separates *Suthora davidiana* as the type of a new genus "*Neosuthora*."

Three coloured plates attached to this Part contain figures of *Parus nigriloris*, *Remiza pendulina caspia*, *Ægithalus fuliginosus*, and *Anthoscopus ansorgei*, besides details relating to other species.

62. *Hellmayr on the Tree-creepers* *.

[Genera Avium, conducted by P. Wytsman. Part XV. Certhiidæ. by C. E. Hellmayr. Brussels, 1911.]

As belonging to the Family Certhiidæ five genera are recognised by the author—*Certhia*, *Tichodroma*, *Salpornis*, *Climacteris*, and *Rhabdornis*. The multitudinous forms of *Certhia* are mostly treated as subspecies. A plate contains a pretty figure of *Salpornis salvadorii*, and details of other species. To *Certhia brachydactyla* is assigned the rank of a species with 13 subspecies.

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* *Cf.* Das Tierreich, 1903.

63. *Hellmayr on the Nuthatches.*

[Genera Avium, conducted by P. Wytsman. Part XVI. Sittidæ, by C. E. Hellmayr, Brussels, 1911.]

In this essay four genera of the Family of Sittidæ—*Sitta, Callisitta, Neositta,* and *Daphænositta* are recognised. Under *Sitta* 46 forms are enumerated, but most of these are subspecies. Our familiar Nuthatch is called *Sitta europæa britannica. Sitta whiteheadi,* of Corsica, is placed as a subspecies of *Sitta canadensis.* We admit that the two forms are closely allied, but we think that the Corsican bird ought to stand as a separate species.

A nicely drawn plate represents the beautiful *Callisitta formosa* and contains details of other species.

64. *Hellmayr on the* Regulidæ.

[Genera Avium, conducted by P. Wytsman. Part XVII. Regulidæ, by C. E. Hellmayr. Brussels, 1911.]

In the Family Regulidæ the author includes four genera—*Leptopœcile, Regulus, Lophobasileus,* and *Polioptila.* As regards the first three of these we suppose there is no doubt that they are near allies, but whether *Polioptila* should be assigned to the Regulidæ is, we think, a little doubtful. Its distribution is so utterly different from that of the other genera. Herr Hellmayr catalogues 25 forms of *Polioptila,* but the majority of these are subspecies. In a good plate accompanying this part are figures of *Polioptila schistaceigula* and *Regulus tristis.*

65. *Hellmayr on new or rare Birds from Peru.*

[Ueber neue und seltene Vögel aus Sudperu. Von C. E. Hellmayr. Verh. Orn. Ges. Bay. xii. Heft i.]

Herr Hellmayr describes, in his usual careful and accurate manner, some new or rare birds from a collection made by Messrs. H. and C. Watkins at or near Carabaya, in Southern Peru. Two new species are *Automolus watkinsi* and *Thamnophilus marcopatæ.* Three specimens of the rare Cœrebine form *Oreomanes fraseri* were in the collection. They were obtained in the Eastern Andes, at a height of 11,400 feet above sea-level.

66. *Hilgert on a new* Laniarius.

[*Laniarius funebris degener,* subsp. nov., von C. Hilgert. Nov. Zool. xviii. p. 605.]

Herr Hilgert writes on the races of the African Bush-shrikes allied to *Laniarius funebris,* and decides that they should be referred to three subspecies, which he proposes to call *Laniarius funebris funebris* (East Africa), *L. f. degener* (South Somaliland), and *L. f. atrocæruleus* (Abyssinia and North Somaliland).

67. *Index to the 'Hand-list of Birds.'*

[General Index to a Hand-list of the Genera and Species of Birds (Nomenclator Avium tum fossilium tum viventium), Volume V. Edited by W. R. Ogilvie-Grant. London, 1911. 8vo. pp. 199.]

No greater boon could have been offered to working ornithologists than this volume, which is a fifth and final adjunct to the 'Hand-list of Birds' of the late Dr. Bowdler Sharpe. It contains a complete Index to all the generic and specific names used in Ornithology contained in the four volumes of the Hand-list, with a reference to each page at which they are to be found. This enables the user to find the required reference by searching one Index instead of four, and saves the student much time and impatience. This laborious task has been undertaken and executed by Mr. Thomas Wells, Mr. Ogilvie-Grant's chief attendant, to whom all ornithologists should be duly grateful, not omitting to thank Mr. Ogilvie-Grant for his superintendence of the work, and the Keeper of Zoology for sanctioning it.

68. *Jourdain on Corsican Birds.*

[The Bird Life of Corsica. By F. C. R. Jourdain. Reprinted from the 'Proceedings' of the 5th International Ornithological Congress at Berlin in 1910, pp. 370–392.]

After a useful summary of the Ornithological literature on Corsica, and a short description of the physical features of the country, the author gives a list of 225 species of birds, based upon the results of visits paid to the Island in 1908 and 1909. For fuller details the reader may be referred to Mr. Jourdain's papers in our volumes for 1911 and 1912.

69. *Koch on the Birds of Esthonia.*

[Uebersicht über die Vögel Estlands. Von Oscar Koch. Herausgegeben vom Verein für Naturlande Estlands. Reval & Leipzig, 1911. 89 pp.]

This is a compact little pamphlet on the birds of the above-named country, giving a list of 255 species, with short notes on each. The author's intention is to bring up to date Russow's work 'Ornis Esth-, Liv- und Kurlands.'

70. *Loudon on two new subspecies of* Turdus.

[Zwei neue Drosselformen. Von Harold, Baron Loudon. Reprinted from Reichenow's Orn. Monatsb. Jan. 1912.]

The two new forms are *Turdus pilaris sarudnyi* and *T. viscivorus sarudnyi*, based on specimens collected by the author in Talysch and Transcaspia.

71. *Lönnberg on the Birds of the Swedish Zoological Expedition.*

[Birds collected by the Swedish Zoological Expedition to British East Africa, 1911. By Einar Lönnberg. Kongl. Svensk. Vet.-Ak. Handl. xvi. No. 5. Upsala and Stockholm, 1911.]

This Report begins with a description of the route of the Swedish Zoological Expedition in British East Africa, and of the country through which it passed. The principal kinds of "Landscape" are then discussed as "Steppe," "Thornbush," and "Forest," while Reichenow's views as to the occurrence of nearly related forms in distant and isolated mountains are freely criticised. After some instructive remarks on the general distribution of the birds in East Africa, lists are given of the species found in grass-steppe, forest country, and other special localities. Among these the most important, perhaps, is the list of species obtained south of the Guaso Nyiri and in the "thorn-bush" north of the same river, as that district has been little visited by collectors. Specimens of about 123 species were obtained here, and their examination proves that the Avifauna of the Guaso Nyiri is nearly allied to that of Somaliland.

The migratory birds recorded by the Expedition were of 29 species, all previously recorded from Eastern Africa.

In the systematic portion of the Report, which follows, general remarks are given on the species, of which specimens were brought home by the Expedition. They are arranged in the same order as in Reichenow's 'Vögel Afrikas,' and a reference is given in every case to that work. Two Ostriches are included in the List—*Struthio massaicus* (representing *S. camelus*) and the very distinct Somali Ostrich *S. molybdophanes*, of which a fine male specimen was obtained on the "Acacia-steppe" south of the river Guaso Nyiri. A new subspecies of Guinea-fowl is described (p. 47) as *Numida ptilorhyncha rendilis*, while *Alseonax pseudogrisea* (with some doubt) receives a new name (p. 82).

Many field-notes accompany the systematic list of this memoir and greatly increase its value. We know as yet far too little of the habits and manners of the Birds of British East Africa, although our National Collection is abundantly supplied with specimens.

72. *Martorelli on Falcons.*

[Il *Falco feldeggi* Schlegel e I suoi affini. By Prof. Giacinto Martorelli. Reprinted from Atti Soc. Ital. Sci. Nat. vol. l.]

This article gives a very full account of the Lanner Falcon and its allies, their phases, distribution and so forth, with illustrations of various species.

73. *Martorelli on Hybrid Pheasants.*

[Nota sopra alcuni ibridi fra il "*Diardigallus diardi*" Bp. ed il "*Gennæus melanonotus*" (Blyth). By Prof. Giacinto Martorelli. Reprinted from Revista Ital. di Orn. vol. i. pp. 75–80, col. pl.]

The author gives an interesting account of the above-mentioned hybrid, and figures the male of the former species and the female of the latter.

74. *Mathews on Australian Birds.*

[The Austral Avian Record. A Scientific Journal devoted primarily to the study of the Australian Avifauna. Edited by Gregory M. Mathews. Vol. i. Nos. 1, 2.]

This new Journal is issued in connection with Mr. Mathews' Museum at Watford, and consists of notes on various subjects of interest that have occurred to him in the course of his large illustrated work now being published. The first part treats of the Australian Cuckoos, and of the dates of issue of Lear's 'Psittacidæ' and Müller's 'Naturlijke Geschiedenis, Land- en Volkenkunde.' The second part consists of additions to the author's list of the Birds of Australia (Nov. Zool. xviii. p. 171, see below) and descriptions of new or hitherto undescribed eggs.

It is impossible to comment here on the validity of the new genera, species and subspecies proposed, which are very many in number, and we must wait to see how many of them are accepted by Ornithologists in general when they appear in Mr. Mathews' larger work.

75. *Mathews' Reference-List of Australian Birds.*

[A Reference-List to the Birds of Australia. By Gregory M. Mathews. Nov. Zool. xviii. no. 3, pp. 171–455, Jan. 31st, 1911.]

In his "Introduction" to the last volume of the 'Hand-list of Birds,' the late Dr. Bowdler Sharpe (as on former occasions) severely condemned the practice of naming "subspecies or races with trinomial names." That subspecies "exist in nature"—he goes on to say, "no one can deny," but in his opinion a binomial title would answer every purpose. When we turn over the pages of the memoir now before us we feel much inclined to agree with Sharpe's views. A short time ago (1908) Mr. Mathews presented us with a 'Hand-list of the Birds of Australia,' founded upon Sharpe's 'Hand-list of Birds,' and containing the names and localities of the 880 species and subspecies, which he then considered to be Australian. Now he has altered his plans altogether, and in the present memoir, besides making numerous alterations in nomenclature, has increased the number of Australian forms to about 1450, thus adding some 570 forms to the Australian Catalogue "at one fell swoop." We quite agree with Mr. Mathews in pronouncing this proceeding to be "revolutionary." Nothing like it, we believe, has been done before, and it is evident that Mr. Mathews takes quite a different view from his fellow workers of what is sufficient variation to necessitate the recognition of a subspecies.

So far as we can make out, the subspecies first described in the present List are about 540 in number. Each of them is accompanied by a short statement as to how it differs from its nearest ally, but the characters assigned to them are in most cases extremely meagre. Such slight variations as being 'paler above" or "darker below" or "size less," especially when there is a difference in locality, seem to Mr. Mathews to be quite sufficient for the foundation of a new subspecies, and he proceeds accordingly. It is quite impossible for us to go into controversy with one who "has personally handled" 30,000 specimens of Australian birds, but we are quite certain that there must be a mistake somewhere, and and leave it to others who are better acquainted with the Australian Ornis than we are, to find out where these mistakes are. We shall not on this occasion pursue our usual practice of giving the names of the 570 (supposed) new subspecies. Anyone working on the Birds of Australia must of course consult Mr. Mathews' 'Reference List.' But we observe that he has also made the following new generic names :—

Name.	Type.	Page.
Northiella,	*Psephotus hæmatogaster,*	274.
Neopsephotus,	*Psephotus bourkii,*	279.
Neonanodes,	*Psephotus chrysogaster,*	279.
Neosericornis,	*Sericornis lathami,*	352.
Tasmanornis,	*Sericornis humilis,*	353.
Magnamitis,	*Diaphorillas woodwardi,*	366.
Eyramitis,	*Diaphorillas goyderi,*	366.
Caloptilotis,	*Ptilotis macleayana,*	414.
Paraptilotis,	*Ptilotis fusca,*	414.
Lophoptilotis,	*Ptilotis leadbeateri,*	414.
Ptilotula,	*Ptilotis flavescens,*	414.
Alisteranus,	*Amadina cincta,*	433.

Very slight, if any, characters are given for these new generic terms; it appears to be considered quite enough to indicate the typical species.

On the whole we cannot consider Mr. Mathews' 'Reference List' to be a satisfactory piece of work, although it must have caused him much time and much trouble. His mode of treatment of the Australian Crows has already been criticized (see Bull. B.O.C. 1912, p. 70), and his proposal to create such a crowd of subspecies is not likely to be accepted by his fellow-workers in Australia, though it may meet the approval of some of the more ardent members of the "new school."

76. *Nelson on two new Nun-birds.*

[Descriptions of two new species of Nun-birds from Panama. By E. W. Nelson. Smiths. Misc. Coll. vol. xxxvi. No. 37. Washington, 1912.]

A single example of each of these supposed new species of *Monasa* was obtained by Mr. E. A. Goldman while working on the Smithsonian Biological Survey of Panama during the winter of 1911. Mr. Nelson has named them *M. fidelis* and *M. similis*.

77. *Nicoll on Birds observed in the Zoological Gardens, Giza.*

[Wild Birds of the Giza Gardens, 1898–1911. By Michael J. Nicoll. Pp. 22.]

This is a second edition of the List of the Wild Birds that have been observed in the Zoological Gardens at Giza, which seems to be a paradise for the feathered race, or perhaps we may say a place of refuge for rare species. Although hardly more than fifty acres in extent the Giza Gardens, which are on the left bank of the Nile opposite to the city of Cairo, seem to be peculiarly attractive to birds of all descriptions, and Mr. Nicoll has added a considerable number to his list of bird-visitors since the publication of his first edition. It now embraces 200 species, of which 187 belong to the Avifauna of Egypt, and 13 are foreigners, presumably escaped from captivity. Seventeen species are known to have bred within the Gardens.

78. *North on Australian Birds and Eggs.*

[Nests and Eggs of Birds found breeding in Australia and Tasmania. Vol. iii. pt. 3. Sydney, Oct. 1911.]

Since we last mentioned this important book (see above, p. 199) another part has reached us. It continues the account of the Order Accipitres, and contains the species of the subfamilies *Accipitrinæ* and *Buteoninæ*, with the greater portion of the *Aquilinæ*. As in the former Parts the details on all the species are copious, and the illustrations of the nests excellent.

79. *Oberholser on the Forms of* Collocalia fuciphaga.

[A Revision of the Forms of the Edible-nest Swiftlet, *Collocalia fuciphaga*. By Harry C. Oberholser. Pr. U.S. Nat. Mus. vol. xlii. p. 11.]

In a previous revision of the genus *Collocalia* (*cf.* Proc. Ac. Nat. Sc. Phil. 1906, p. 177) Mr. Oberholser had assigned three subspecies to *C. fuciphaga*. He now increases that number to ten, of which he gives descriptions and localities. Three of these—*C. f. aerophila*, *C. f. mearnsi* (Philippines), and *C. f. tachyptila* (Island of Guam) are now described for the first time.

80. *Parrot on the Bee-eaters.*

[Genera Avium, conducted by P. Wytsman. Part XIV. Meropidæ, by (the late) C. Parrot. Brussels, 1911.]

After a short general Introduction the author (whose early death we much deplore) shews that the Bee-eaters are divisible into two subfamilies, the *Meropinæ* and the *Nyctiornithinæ*. In the former he recognises four genera, in the latter two. A good coloured plate illustrates some of the more remarkable forms. Many subspecies are in the List.

81. *Rothschild on the term "Subspecies."*

[On the term "Subspecies" as used in Systematic Zoology. By the Hon. Walter Rothschild, Ph.D., F.R.S. Nov. Zool. xix. p. 135.]

Mr. Rothschild wishes to explain that the term "subspecies" is used by himself, and, he thinks, by most modern systematic zoologists, to replace the term "varietas geographica." To this practice we quite agree—as also that trinomials should be used only for geographical varieties and not for individual aberrations.

82. *Rothschild and Hartert on their Algerian Explorations.*

[Ornithological Explorations in Algeria. By the Hon. W. Rothschild, Ph.D., and E. Hartert, Ph.D. Nov. Zool. xviii. p. 456.]

We have here a most interesting account of the ornithological results of three visits to Algeria, made by two well-known Members of the Union in 1908, 1909, and 1911. After a general history of the routes taken by the three expeditions and remarks on some of the principal objects attained, we find a "List of the Birds collected and observed," which includes the names of no fewer than 230 species. Concerning each of these field-notes are given, besides systematic observations where such are required. It was not to be expected that novelties would be obtained. Algeria, Marocco, and Tunis are already too well-known for that, but two subspecies are newly named (*Colæus monedula cirtensis* and *Galerida theklæ hilgerti*), and a large number of useful notes are given concerning *Rhamphocorys clot-bey*, *Cinclus minor*, *Comatibis eremita*, and other rarities.

The Bald Ibis appears to be rare in the district visited, but one specimen was obtained for the authors through a friend, after they left.

Our readers, we are sure, will much appreciate this article, but may be a little puzzled by the changes in nomenclature, which will supply riddles to some of them.

83. *Salvadori on* Conurus æruginosus.

[Note on *Conurus æruginosus* and the allied species. By T. Salvadori, C.M.Z.S. Nov. Zool. xix. p. 84.]

In the 'Catalogue of Birds' (vol. xx.) only four species of the group of *Conurus* allied to *C. æruginosus* were recognised. Count Salvadori, after an examination of additional specimens, principally from the Tring Museum, is now able to admit ten, of which the differential characters and localities are here given.

84. *Salvadori on* Pucrasia ruficollis.

[Nota intorna alla *Pucrasia ruficollis* David et Oust. By Count T. Salvadori. Reprinted from Boll. Mus. Zool. ed Anat. Torino, vol. xxvii. no. 647.]

The author, having received among some specimens from the Italian Missionaries of Chensi in China a male bird of the genus *Pucrasia*, finds that it agrees with the description given by David and Oustalet of *Pucrasia xanthospila* var. *ruficollis*, while he considers that it should stand as a species and not as a subspecies. A key is given to the three species *P. ruficollis*, *P. xanthospila*, and *P. darwini*.

85. '*Scottish Naturalist.*'

[The Scottish Naturalist, with which is incorporated 'The Annals of Scottish Natural History,' March, April, May 1912.]

In the first of these numbers our energetic coadjutors Misses Baxter and Rintoul record their observations on Migration in the Isle of May during a month in the spring and autumn of 1911, respectively. The greatest rushes of birds were on May 8 and May 27, and many scarce birds were obtained, including continental forms of some British species, while *Phylloscopus trochilus eversmanni* and *Calcarius lapponicus* may be mentioned in particular. Notes by Messrs. W. Evans and Baigrie are incorporated.

In the April part the influx of Little Auks in the winter of 1911–12 is discussed by the Editors; Mr. H. N. Bonar writes on the trees used by the Great Spotted Woodpecker for breeding purposes; and Mr. A. L. Thomson gives the first record of the finding of a Sandwich Tern's nest in "Dee," at the Sands of Forvie.

In May Mr. Harvie-Brown begins a paper on the past and present distribution of the Fulmar as a breeding species in the British Isles, and traces its course from the Shetlands to the Orkney group. This paper is part of a full account of the bird, to be published subsequently, and is to be taken as a preliminary instalment, to which—and to the accompanying map—additions or corrections may possibly be made. Mr. Eagle Clarke follows with an article on the changes of plumage in the Fulmar, which hitherto have been little known and certainly inadequately described.

86. *Van Someren's Studies of East-African Bird-life.*

[Studies of Bird-life in Uganda. By R. A. L. Van Someren, M.D., D.Ph., M.B.O.U., and V. G. L. Van Someren, L.D.S., R.C.S.Ed. London: John Bale, Sons and Danielson, 1911, 25 plates.]

This is a series of 25 photographic plates taken by the authors in Uganda, and illustrating various scenes of Bird-life in that country. Each plate has an accompanying page of letterpress. We have had many lists of the birds of British East Africa and Uganda, but this we believe is the first illustrated work on the subject.

The plates are all good, and some of them may be pronounced excellent.

It may be said that more interesting and characteristic species might have been selected. This is partly true, as we can see Egyptian Geese and Sandpipers without going to Uganda, but it should be recollected that not every sort of bird can be induced to sit for its portrait, and the artist is, therefore, somewhat limited in his choice of subjects.

The letterpress also contains much interesting information, and is the more acceptable as we have as yet received very little information on the habits and customs of the birds of East Africa. It was a mistake, we think, not to have put the birds' names on the plates, as that would have saved many inconvenient researches.

87. *The South African Journal.*

[The Journal of the South African Ornithologists' Union. Vol. vii, No. 2, Dec. 1911.]

In this part we have the first instalment of Notes on a Collection of Birds in the Transvaal Museum from Boror, Portuguese East Africa, made by the writer (Mr. Roberts) and Mr. Kirby. The district is described, and its peculiar climatic conditions, while attention is particularly called to a new species (*Dendromus albifacies*) and three new subspecies

(*Vinago delalandei orientalis*, *Pisorhina capensis pusilla*, and *Glaucidium capense rufum*) already described in the 'Annals of the Transvaal Museum.'

Mr. Haagner furnishes a further note on the mandibular hook of the Honey-Guide (S. Afr. Journ. 1907, p. 1), now found in *Indicator major* as well as in *I. variegatus*. Bird Notes from East London by Mr. Wood, and a record of the Black-tailed Godwit from Durban by Mr. E. C. Chubb, conclude the part, except for the obituaries of Mr. A. D. Millar and Capt. Shelley.

88. *Thomson on Bird-Marking.*

[The Possibilities of Bird-Marking, with special reference to the Aberdeen University Bird-Migration Inquiry. By A. Landsborough Thomson. Reprinted from Proc. Roy. Phys. Soc. Edinb. vol. xviii. pp. 204–218.]

The author discusses the various methods of marking birds, the value of the results, and the history of the development of the inquiry. The results obtained are then considered, and an important account added of those of the Aberdeen scheme in particular. This excellent pamphlet should be in the hands of all our readers.

XXVII.—*Letters, Extracts, and Notes.*

We have received the following letter addressed to the Editors:—

Sirs,—In your January issue, page 198, under the heading of "Mathews on the Birds of Australia," there appears the following:—"On the first page we have a reference to Mr. H. G. Barnard's statement in 'The Emu' that the eggs of *Rallina tricolor* are white, a fact entirely opposed to previous experience; we should be inclined to agree with Mr. Mathews, and ask whether a single clutch might not be white, while normal eggs are spotted."

The eggs in question were collected by Mr. Barnard for me, so you will perhaps excuse my taking exception to the opinion as expressed by you above. Mr. Barnard is recognized as one of the best and most experienced of Australian collectors, and as one not likely to make an important statement without being sure of his facts. In the case you refer to there is not the slightest doubt that the clutch taken by him belonged to *Rallina tricolor*.

Might I ask you where it has ever been proved, by shooting the bird at the nest, that *Rallina tricolor* lays spotted eggs? Such a statement has been made, but I can find no proof of it.

On the other hand, we have several instances of the white eggs being identified. Besides Mr. Barnard's experience, we have that of the late Mr. Broadbent (Campbell's 'Nests and Eggs of Australian Birds,' p. 744), and I have another set of the white eggs taken by R. Hislop (a well-known collector) at Cooktown, Queensland, in 1897. Mr. Barnard, in writing to me after I mentioned 'The Ibis' article, says: "I cannot understand Mr. Mathews hinting that the white eggs of *Rallina tricolor* are only freaks; the spotted and the white eggs are not the same shape, not to mention the colour. Mr. B. Jardine had two or three sets of each, the clutches of white eggs containing four only each, while those of the spotted eggs contained seven or eight each. Both he and Mr. C. Jardine informed me that while the Red-necked Rail made practically no nest, the other bird made a nest of grass in a tussock like the Pectoral Rail. Mr. B. Jardine could have cleared the matter up long ago, but, like myself, he was not aware that there was any confusion between the two birds."

I may mention here that the Messrs. Jardine have resided at Somerset, Cape York, all their lives, and possess a thorough knowledge of most of the birds there, one of their puzzles being the identity of the second Rail in this locality: this bird beat Mr. H. G. Barnard also at the time.

To sum up:—Mr. Barnard proved conclusively that the *Rallina tricolor* he shot laid four white eggs; Messrs. Jardine have taken several clutches of four white eggs each, similar to Mr. Barnard's clutch; I have a second set of white eggs said, by a reliable collector, to be those of *Rallina tricolor*; the late Mr. Broadbent took white eggs of the same species. The number of eggs to the white clutch has not been known to exceed four, while the spotted clutch usually contains six or eight, the eggs being of a different shape, size, and texture of shell, the nests also are totally different.

It is well known that a second Rail, as yet not identified, but somewhat similar in colour and quite different in habits to *Rallina tricolor*, inhabits the Cape York country, and probably extends south along the coast.

Is it not more reasonable to attribute the spotted eggs to this bird, rather than to assume that the many known clutches of white eggs are freaks of *Rallina tricolor*?

I am, Sirs,
Yours, &c.,
H. L. White,
M.B.O.U., R.A.O.U.

'Belltrees,'
Scone, N. S. Wales.
April 21st, 1912.

New and rare Birds from S.E. Tibet.—Col. F. M. Bailey, whose adventurous journey across Central Asia has lately been described in the 'Geographical Journal' (xxxix. p. 334), made a small collection of birds at high altitudes, a selection from which he has presented to the British Museum. Amongst these are examples of *Babax koslowi* and *Phylloscopus homeyeri* (neither of which were previously represented in the National Collection), *Palæornis derbianus* (Shinden Gompa, 13,500 ft.), and a fine series of Phasianidæ—*Tetraophasis szechenii*, *Crossoptilon tibetanum*, *Ithagenis geoffroyi*, *Thaumalea amherstiæ*, *Phasianus elegans*, and *Perdix sifanica*.

Shedding of the sheath of the bill of a Penguin.—At the meeting of the Zoological Society of London on the 7th of May last Mr. D. Seth-Smith, F.Z.S., exhibited two horn-like sheaths which had been shed from the orange-coloured patch at the base of the lower mandible of a King Penguin (*Aptenodytes pennanti*) living in the Society's Gardens. Mr. W. E. de Winton had observed the shedding of this epidermal sheath in a bird living in the Gardens in 1898 (P. Z. S. 1898, p. 900); but although the present specimen had been carefully watched during two successive moults in March and October 1911 (P. Z. S. 1912, p. 60), no sign of this process had been observed. The bird, however, went through another complete moult in March and April of the present year (1912), and shortly after this was completed the epidermal covering of these orange-coloured patches became loose and finally fell off; the pieces somewhat resembled the wing-cases of a large beetle, being semi-transparent and of a clear orange-colour.

Additions to the British Bird-List.—In the number of 'British Birds' for October last (vol. v. p. 124) Mr. M. J. Nicoll records the occurrence of a small flock of the Slender-billed Curlew (*Numenius tenuirostris*) on Romney Marsh. Three of them were "obtained" and examined by Mr. Nicoll. This is a new addition to the British List, but the bird occurs in the Mediterranean in the winter not unfrequently.

In the same Journal (v. p. 126) Dr. Hartert separates the English form of the Green Woodpecker as *Picus viridis fluvius.* He considers that "not less than five forms of this bird may be distinguished in Europe alone," and proposes to name the Italian form *Picus viridis pronus.*

In No. 1 of the 'Scottish Naturalist' for this year Mr. Eagle Clarke announces the occurrence of a Pine-Bunting (*Emberiza leucocephala*) at Fair Isle on October 30th, 1911. This intruder from the East is quite new to the British List. The occurrence in England of authentic specimens of the White-collared Flycatcher (*Muscicapa collaris*) and the Thrush Nightingale (*Daulias luscinia*) are also recorded in 'British Birds' for February last.

Mr. Wollaston's New Expedition to New Guinea.—The Committee of the B. O. U. have by no means given up their plans for the further exploration of New Guinea and its wonderful avifauna. Mr. A. J. R. Wollaston, a member of the last British Expedition, sailed from Marseilles on the 24th of May for Dutch Borneo, where he intends to engage the services of at least eighty picked men for carriers. Mr. C. B. Kloss, F.Z.S., M.B.O.U., of the Federated Malay States, who will accompany Mr. Wollaston, is still in England, but leaves very shortly for Singapore, where he will be joined by the trained Dyak collectors who are to accompany the Expedition. The whole party will leave Batavia some time in August, and land, probably at the mouth of the Oetakwa River, at the beginning of September. A very strong motor-launch of light draft, specially built for the purpose, has been shipped to Singapore, and should prove invaluable on the lower reaches of the Oetakwa. The Netherlands Government have again shown the utmost kindness, and will facilitate the work of the British Expedition in every possible way.

The principal object of the new Expedition will be the exploration of the Snowy Range (the Nassau Range of the Dutch), which was approached but not attained by the recent British Expedition, as well as by the Dutch Expedition to the Oetakwa River in 1910. An attempt will be made to reach the water-parting, and, if possible, to ascend Mount Carstensz, the highest peak of the range, 15,964 ft.

Mr. Wollaston hopes to land in New Guinea by September, so as to take advantage of the comparatively dry months of November and December. He will there be joined by Mr. C. Boden Kloss, who has travelled much in the Malay countries and is now Curator of the Museum at Kuala Lumpor. Mr. Wollaston hopes also to obtain the service of a geologist.

Death of Dr. Wilhelm Blasius.—With much regret we read the announcement of the death, at Brunswick, on the 3rd of June last, of Dr. Wilhelm Blasius, a German fellow-worker well known to many of us, and a Foreign Member of the B. O. U. We hope to be able to give some account of his life and work in our next number.

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XXVIII.—*The Birds of Gran Canaria.*

By David A. Bannerman, B.A., M.B.O.U., F.R.G.S.

(Plates IX.–XII.)

The island of Gran Canaria is situated approximately in latitude 28° N., longitude 15° 30′ W., and is noteworthy chiefly on account of its equable and delightful climate. Moreover, it has lately grown to be a most important shipping centre, large numbers of vessels calling at Las Palmas on their way to and from the south. In consequence, many people winter there every year, and to an ornithologist the island is full of interest. During the many weeks which I have spent there annually for the past five years, I have devoted almost all my time to studying the birds and to making a representative collection for the Natural History Museum. The results of my observations and those of former naturalists who have visited Gran Canaria are contained in this paper. Although much has appeared in 'The Ibis' on the birds of the other islands of the group, yet Gran Canaria has been almost entirely neglected. The only article * dealing with the ornithology of this island as a whole was published by Herr von Thanner, on the results of a collecting-trip made by him in 1909.

In shape the island is almost round, and covers an area of 635 square miles (by the planimeter); the distance from north to south is 34½ miles and from east to west 29 miles. The nearest point of Tenerife is distant 37 miles and that of Fuerteventura 50 miles. On the east coast undulating plains roll up from the sea to the "Cumbres," which take up the greater part of the interior and, viewed from the sea, give the island a very mountainous appearance. Los Pechos, the highest ridge, is 6400 ft. high, and the Roque Nublo, 6110 ft., appears as an isolated pillar of rock about two miles to the northwards. Deep barrancos, which run from the coast far into the heart of the mountains, split up the island, and, indeed, some of these ravines are truly immense, notably the Barrancos de Tirajana, Fatarga, de la Virgen, and Tejeda (de la Aldea)—the last-named when seen from the coast appearing to divide the island into two parts. The "Isleta"—the northern portion—appears as a detached conical islet separated from the mainland by an isthmus composed largely of drifted sand.

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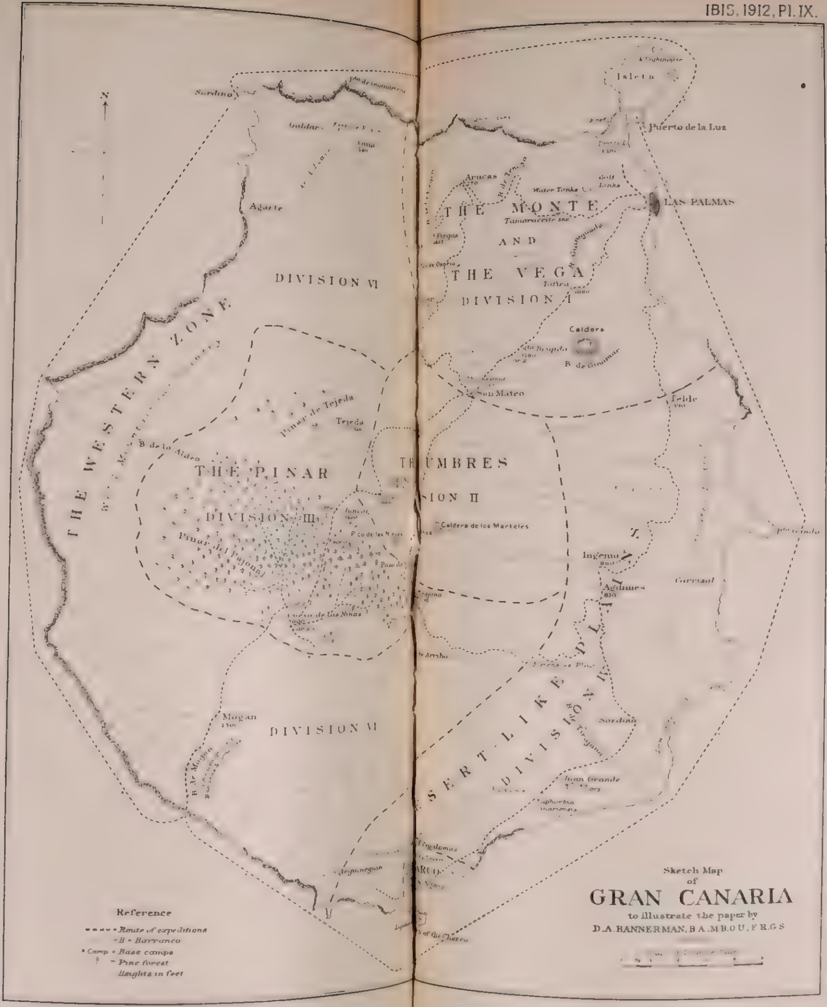
* 'Ornithologisches Jahrbuch,' xxi. 1910.

The accompanying map (Plate IX.) which I have prepared will shew the various expeditions that I have made and the localities in which birds have been collected.

For the convenience of those who are not acquainted with Gran Canaria, I have split up the island into six Divisions, which are all more or less clearly defined:—

Division I.—*Monte and The Vega.* (Cultivated districts in the north.)
Division II.—*The Cumbres.* Plate X. fig. 1. (The mountain range in the centre of the island.)
Division III.—*The Pinar.* Plate X. fig. 2. (A large tract of pine-forests covering the mountainous country in the south and south-west.)
Division IV.—*Desert-like Plains.* Plate XI. fig. 1. (Including the sand-hills of Maspalomas.)
Division V.—*The Charco.* Plate XI. fig. 2. (The lagoons and swampy country found on the Maspalomas coast.)
Division VI.—*The Western Zone.* (The wild rocky country bordering the western coast-line.)

The members of the Fauna inhabiting these six divisions differ strikingly one from the other.


N
Sardina
Pta de Sardina
Galdar
Agaete
Arucas
Las Palmas
Puerto de la Luz
Isleta
Lighthouse
Water Tanks
Golf Links
Tamaraceite
Firgas
Teror
Caldera
B. de Guiniguada
Sta Brigida
San Mateo
Telde
Tejeda
Pinar de Tejeda
B. de la Aldea
Caldera de los Marteles
Pico de las Nieves
Paso de la Plata
Tunte
Cueva de las Ninas
Ingenio
Aguimes
Carrisal
Sardina
Juan Grande
Euphorbia canariensis
Maspalomas
Arguineguin
Mogan
B. de Mogan
THE WESTERN ZONE
DIVISION VI
THE MONTE AND THE VEGA
DIVISION I
THE PINAR
DIVISION III
THE CUMBRES
DIVISION II
DESERT-LIKE PLAINS
DIVISION IV
DIVISION VI
Reference
Route of expeditions
B = Barranco
Camp = Base camps
Pine forest
Heights in feet

Sketch Map
of
GRAN CANARIA
to illustrate the paper by
D. A. BANNERMAN, B.A., M.B.O.U., F.R.G.S.

Division I.—*Monte and the Vega.*

By this I mean the country which includes the villages of Tafira, Santa Brigida, San Matéo, Teror, Firgas, Moya, Arucas, and Tamaraceite. In these districts the soil is to a large extent under cultivation—bananas, sugar-cane, oranges, tomatoes, almonds, vines, and immense quantities of beans constituting the staple produce. Near San Matéo fine chestnut woods stretch for some distance up the slopes towards the Cumbres, and laurels are found in the neighbourhood of Santa Brigida, besides countless other trees of many species. In this zone two famous barrancos are situated, the one at San Matéo and the other at Firgas, where the vegetation is most luxuriant. Birds here are more plentiful, both in number and in species, than in any other district. Flocks of Goldfinches, Brown Linnets, Spanish Sparrows, and Canaries are always in evidence, added to which many species, such as the Tenerife Blue Tit, Common Chaffinch, Grey Wagtail, Rock-Sparrow, Berthelot's Pipit, Blackbird, Chiffchaff, and Blackcap, are ever present in varying numbers. In the neighbourhood of San Matéo numbers of Corn-Buntings are met with, and their hissing notes can be heard on all sides. Occasionally in the winter months small flocks of Swifts appear, but never remain for very long. Kestrels, Kites, Buzzards, and Egyptian Vultures frequent the hillsides and open valleys. Ravens often pass overhead on their way to the Cumbres, where they are plentiful. In the thick fields of beans Quail can sometimes be flushed; however, they are not very common and a good dog is almost essential when shooting them.

One of the rarest and most interesting species to be found in this zone is the Redbreast (*Erithacus rubecula superbus*): it frequents the most secluded spots, such as the deep barranco beyond San Matéo and the thick undergrowth which is found on the slopes above that village. Some large water-tanks are built on this ground, to which many land-birds and several species of waders resort.

I found Rock-Pigeons very numerous in the caves near

Guanarteme, and excellent sport can be had by waiting for these sporting birds as they fly from the country to their stronghold in the cliffs. In the Monte they are not nearly so plentiful as they are in the south of the island, where they literally swarm in thousands. In the summer months Swallows and House-Martins visit Gran Canaria in fair numbers; but they are seldom seen before July, and depart very soon, not remaining to breed. Owls (*Asio otus canariensis*) are rare; I have met with them at Tafira. The Barn-Owl is very scarce indeed, and I have never seen one in the flesh. The Hoopoe, in this part of the island, is rarely observed in any numbers in the winter, but later in the year is said to occur commonly in the garden of the Santa Catalina Hotel at Las Palmas.

Between the Isleta and the town of Las Palmas a curious tract of drifted sand is to be found, and beyond it a dry elevated plateau stretches towards Tafira. On this arid, sun-baked ground few birds are to be seen save Berthelot's Pipit, occasional flocks of the Trumpeter Bullfinch, the Short-toed Lark, and several pairs of the Norfolk Plover. Vegetation consists chiefly of *Euphorbia*, the three commonest species being *E. regis*, *E. aphylla*, and *E. obtusifolia*, besides various other desert-loving plants such as *Launæa spinosa* and *Plocama pendula*.

Division II.—*The Cumbres.*

(Plate X. fig. 1.)

As might be expected, in these mountain solitudes bird-life is remarkably scarce, and is chiefly represented by the Raptores: Vultures, Kites, Buzzards, and Kestrels all being very plentiful. When encamped close to the Roque Nublo in February 1911, at an altitude of 5000 ft., I was much struck by the many Rock-Partridges (*Caccabis rufa*) to be found at this height. On every side of the ravine they were calling one to the other, the birds silhouetted against the sky on the highest pinnacles they could find. While at this camp I noticed several large flocks of Canaries, and again when encamped still higher up on a plateau 5650 ft.

1. The Cumbres.

2. The Pinar.

West, Newman proc.

above the sea. Here also I met with a large flock of Corn-Buntings; and on one occasion while passing over table-land at 5000 ft. I flushed a pair of Coursers, although these birds are almost entirely confined to the desert country round Maspalomas in the extreme south-east corner of the island. Berthelot's Pipits are found everywhere in the Cumbres, generally in pairs. Hundreds of Rock-Pigeons make their homes in the caves, and as very few are shot they must be increasing enormously every year. Each morning, long before the mists had dispersed, we were awakened by the melancholy croakings of the Ravens as they flew over the camp. They breed in the high cliffs, but I was too early to find their eggs.

The panorama seen from the summit of the Cumbres is grand in the extreme, and a magnificent view of the snow-capped "Pico de Teide" is obtained. The highest peaks in the Cumbres are broken by large stretches of almost desert-land, parched by the sun and covered with loose stones and boulders. Vegetation is confined to the more sheltered barrancos, where certain bushes and grasses seem to flourish despite the character of the soil. The photograph reproduced, which was taken at an altitude of 5110 ft., facing the south-east of the island, gives a fair idea of the country and its rugged aspect; but it must be remembered that when once the summit of the Cumbres is reached progress is not at all difficult, and large stretches of almost flat ground are traversed before the descent is begun on the opposite side.

Division III.—*The Pinar.*

(Plate X. fig. 2.)

When the Cumbres are crossed the character of the country changes. Barren mountains and deep barrancos give way to fertile valleys and large tracts of pine forest, which stretch as far as the eye can reach towards the south-west coast. The largest of these forests is known as the Pinar Pajonal, and here I camped for a considerable time in 1910 and 1911, thoroughly exploring its depths and the bird-life contained therein. As can be seen from the photograph, the trees have been severely thinned by the charcoal-burners, and in many parts utterly destroyed by the Spaniards in the most ruthless fashion. Undergrowth is practically non-existent, and the dead pine-needles on the parched earth made walking very difficult. These pines are the home of the very beautiful Blue Chaffinch (*Fringilla teydea polatzeki*), a subspecies of the form found on the Peak of Tenerife. All my notes on this interesting subspecies will be found under the heading of the bird itself. Most noticeable of all in these forests is the brightly coloured Great Spotted Woodpecker. These birds are very numerous and extremely noisy, making themselves heard at a great distance in the silent woods. Pigeons also are fairly common, but are very wary. One of the most attractive species is the Tenerife Blue Tit; these little birds roam through the trees in small parties, keeping up an incessant chatter as is their wont. Chiffchaffs are constantly heard, although Herr von Thanner affirms that he never met with any in the Pinar. I found Partridges occasionally on the outskirts of the forests; but they preferred the hot sheltered barrancos, where they were quite plentiful, especially in the neighbourhood of the Cueva de Las Ninas. At this spot, where I was encamped in 1910 and 1911, a large Barn-Owl was several times seen by one of the members of my party; on one occasion it alighted on the ground close to the tent, where it could be plainly seen in the brilliant moonlight. Unfortunately it was never obtained. Norfolk Plovers were heard calling at dusk, but were never seen in the daytime. Other species noticed in the Pinar Pajonal were Shrikes, Grey Wagtails, Berthelot's Pipits, Blackbirds, and Canaries, all of which were decidedly scarce. Ravens and all the Birds of Prey, on the other hand, were common. Besides Vultures, Buzzards, Kites, and Kestrels, Herr von Thanner mentions having seen a single Sparrow-Hawk in the Pinar close to the Cueva de Las Ninas. In my opinion this must have been a chance straggler, as I have never heard of another example. The same collector obtained a Redstart on the 27th of March, in the Pinar de Mogan, but this also is a rare migrant.

The Pinar Pajonal commences at about 3000 ft. above Puerto Mogan, and on the slopes above Juncal the path through the pines reaches an altitude of 4000 ft. Fresh water is to be found in abundance near the Cueva de Las Niñas, and several deep pools of icy water are hidden in the depths of the forest.

Division IV.—*The Plains and Sandhills.*

(Plate XI. fig. 1.)

From Carrisal to Arguineguin is to be found perhaps the most desolate country in the whole island, and in consequence bird-life is exceedingly scarce. Looking down from behind the town of Aguimes, an immense flat plain stretches out before us from Carrisal to Juan Grande. The long ride across this desert is monotonous in the extreme. The ground is strewn with loose stones and boulders, and in parts is fairly thickly covered with Euphorbia (of which Gran Canaria possesses eleven different species) and another shrub named *Plocama pendula.*

From Juan Grande, where a certain amount of cultivation has taken place, the plain continues much as before, save that giant *Euphorbia canariensis* is found growing abundantly. This district is said to be of great interest to geologists. Nearing Maspolomas the ground begins to rise slightly, and a considerable amount of drifted sand covers the surface. Throughout this entire waste birds are seldom seen—Trumpeter Bullfinches, Short-toed Larks, Berthelot's Pipits, and a few Vultures, Kestrels, and Ravens being the only species found. I had hoped to meet with some form of Desert-Lark in this part of the island, but in this I was disappointed. As we neared the "Charco" the route lay over an elevated plateau close to the sea on which were growing *Plocama pendula* and scattered clumps of Euphorbia bushes; this in turn gave way to sandhills covered with a scanty vegetation; several Norfolk Plovers were flushed as we passed through the belt of Euphorbia, but were never seen far from these bushes. The plateau and sandhills are the true home of the Courser, small parties of which were to be seen in all directions. Trumpeter Bullfinches were present in small flocks and were remarkably tame. Other species noted were Ravens and Rock-Pigeons, the latter in immense flocks which do considerable damage to the crops.

Division V.—*The "Charco" of Maspalomas.*
(Plate XI. fig. 2.)

This "Charco" is utterly unlike anything else to be seen in any of the islands. It is best described by imagining a fertile valley bounded on the one hand by sandy dried-up plains and on the other by a stretch of barren sandhills, which together form a country quite unique in character. Fresh water running from the hills into this valley becomes dammed for about half a mile from the sea and forms a considerable swamp; the main stream always appears to be running, but on the right bank of this stream various arms of stagnant, or almost stagnant, water stretch into the tangled vegetation. This consists of tamarisk bushes, poplars, stunted palms, tarajal bushes, mounds of coarse spiky grass, and rushes. Two clumps of tall date-palms stand out above everything and lend an extra charm to the scene. Some of the lagoons and pools are very deep, the banks being thickly overhung with coarse grass which affords a perpetual hiding-ground to the few water-birds which are to be found here. At one corner of this "Charco," on the coast, is built the Maspalomas Lighthouse, and from the summit of this I mapped the country in the immediate neighbourhood. At high tide the sea runs up the main channel, which is then transformed into a comparatively wide stretch of water, but the salt water does not reach up the various lagoons. At low tide a considerable stretch of sand is left bare, much of it quicksand, and here innumerable waders may be found—the Ringed Plover, Sanderling, Dunlin, and Kentish Plover were all numerous in February, especially the Kentish Plover, which I am sure breeds in the vicinity. Whimbrels were occasionally noticed on the rocks by the lighthouse, and Sandpipers were found near the edge of the lagoons. At the time of my visit in February much of the marsh was dry, but after heavy rains in the hills the

1. Desert-like Plains.

2. The "Charco" of Maspalomas.

West, Newman proc

"Charco" must become a veritable lake and a paradise for water-birds.

I was surprised to find a couple of Snipes frequenting the marsh, Herr von Thanner presumably did not meet with the species. Ducks were peculiarly scarce, and in ten days I only saw a single example, which was obtained and proved to be the Marbled Duck (*Anas marmorata*). Mr. Pittard, who shot this specimen, assures me that he has seen other ducks obtained here which certainly did not belong to this species. A single Heron frequented the sea-shore and reed-beds in turn, and Herr von Thanner, who camped in the Charco in February 1910, mentions a young one which was caught there. Just round the Point of Maspalomas, where the beach is stony, I shot two Grey Plovers out of a small flock feeding at the water's edge; Turnstones were also noticed on the rocks near by, and here I also saw a single Godwit—a bird which has not hitherto been recorded from Gran Canaria so far as I am aware. Doubtless at other seasons of the year numerous Waders of various species call here on migration; lack of observers is probably the only reason that so few Charadriidæ have as yet been recorded from this island.

The "Charco" is also a favourite resort of several species of land-birds, which appear to be entirely isolated from the rest of the island. Of these the Black-headed Warbler (*Sylvia melanocephala*) is perhaps the most interesting; Chiffchaffs were often noticed on the tamarisk-bushes; and two Shrikes (*Lanius excubitor koenigi*) frequented the flat ground behind my tent. In the evenings several Hoopoes made their appearance, flying into the "Charco" from the direction of Maspalomas village. The little Black Swift (*Cypselus unicolor*) and Martins (probably *Chelidon urbica*) were occasionally noted, but always in small numbers. From the account which Herr von Thanner gave of his visit to this spot I certainly expected to see several Coots and Moorhens, but they were remarkably scarce, and although the lagoons and pools are admirably suited to their wants, I only once caught a fleeting glimpse of one of these birds, and even then was not sure to which species it belonged. Certainly it is not possible now in this "Charco" to come upon the pretty picture of bird-life which Herr von Thanner portrayed in his paper! Buzzards occasionally visited the ground, and Vultures, Kites, and Ravens were numerous. I never came across the Peregrines which Herr von Thanner mentions, although I kept a strict look-out for them and visited the barranco where they are supposed to breed; Ospreys, on the other hand, were by no means rare and were seen on several occasions between Messrs. Elder & Fyffes' fruit-store and Arguineguin. Both *Larus fuscus* (? subsp.) and *Larus cachinnans* were found on the coast, but the former was by far the most plentiful species. Terns (*Sterna hirundo*) were entirely absent and have ceased to breed there, as they evidently did until quite recently.

I am greatly indebted to Don Pedro Castillo, the owner of this "Charco," for most kindly allowing me to camp there, and for giving me every facility to collect on his estates.

Division VI.—*The Western Zone.*

This part of the island is really the most difficult to define, as it comprises types of very different country. Moreover, it is the district with which I am least acquainted. It embraces the wild mountainous region bordering the coast from Agaete to Mogan, and thence inland to Fataga and Tirajana. Many huge barrancos break up the coast-line, and these deep valleys are often extensively cultivated. Birds are much more abundant where cultivation exists, hence many species were noted here which were not met with in the intervening country. A typical barranco is that which leads from Puerto Mogan to the Pinar Pajonal, and the following species were noticed there in abundance: Rock-Pigeons, Shrikes, Chiffchaffs, Blue Tits, Grey Wagtails, Spectacled Warblers, Blackbirds, Canaries, Ravens, Kites, Kestrels, and Egyptian Vultures; Corn-Buntings were also seen, but were not so numerous.

From Mogan to Aldea the rough mule-path passes through fine wild scenery and thence on to Agaete. As I have already stated, I have not personally travelled along the path, but have obtained extensive views of this part of the island both from the Pinar and the sea; the country looks very uninteresting, and I should imagine that bird-life is poorly represented, being practically confined to Ravens and the Birds-of-Prey, save in the few fertile valleys where the species already mentioned may be met with. The entire coast-line from Mogan to Sardina is rugged in the extreme, high cliffs, where several pairs of Ospreys have their stronghold, dropping sheer into the sea. On the north-west corner of the island, between Agaete and Galdar, lies an extensive and arid plain, but in the neighbourhood of Galdar itself and the adjoining town of Guia the plains are well watered and yield large crops of bananas, tomatoes, and sugar-cane. As might be expected, the birds found in this region mostly resemble those in Division I.

The principal works bearing on the subject to which reference is made in my paper are contained in the following list:—

Webb, Berthelot, and Moquin-Tandon, Hist. Nat. des Iles Canaries (Ornithologie Canarienne), 1841.
Bolle, J. f. O. 1857, pp. 258–292 and pp. 305–351.
Meade-Waldo, Ibis, 1889, pp. 1–13.
„ Ibis, 1893, pp. 187–207.
Tristram, Ibis, 1889, pp. 13–32.
Hartert, Nov. Zool. 1901, pp. 313–335.
Polatzek, Orn. Jahrb. 1908, pp. 81–119 and pp. 161–197.
„ Orn. Jahrb. 1909, pp. 1–24 and pp. 117–134.
Von Thanner, Orn. Jahrb. 1910, pp. 81–101.

An exhaustive list of the literature on the birds of the Canary Islands is given by Dr. Hartert in the 'Novitates Zoologicæ,' 1901, pp. 333–335. A great deal has been done, however, since that date.

In comparing the various subspecies with the nearest allied species from the mainland, it struck me forcibly that these insular forms are almost without exception *darker* in colouring throughout.

Some ornithologists will doubtless take exception to the many trinomials included in the following pages. If, however, these insular forms are separable by sufficient characters from the species found on the mainland, I judge that they are worthy of subspecific rank. In each case where this has been done, I have given the characters which separate them from the original species.

A large collection of birds from the other islands of the Canary Archipelago, collected by Mr. Meade-Waldo and now in the British Museum, has been available for comparison. Throughout the paper I have quoted Dr. Hartert's valuable work 'Die Vögel der Paläarktischen Fauna' as 'Vög. Pal. Faun.,' and the 'Novitates Zoologicæ' as 'Nov. Zool.'

An asterisk (*) placed against a reference denotes the *original* description of the species or subspecies.

I hope at some future date to publish a paper dealing with the nidification of the Birds of Gran Canaria; at present, however, my notes are very far from complete on the subject, and I have therefore refrained from discussing in this paper the many interesting problems which have been brought to my notice.

I should like to express my grateful thanks to the following residents in Gran Canaria who have all done their utmost to assist me in my various expeditions in the island:—Mr. T. R. Morgan, Mr. Maurice Blandy, Mr. Vines, Mr. Charles Miller, and especially to Mr. P. R. Pittard, who has accompanied me on all my trips and helped me considerably in the forming of my collection.

I am also deeply indebted to Mr. W. R. Ogilvie-Grant for help which he has given me, and to his attendant Mr. Wells.

DESCRIPTION OF PLATES IX.-XII.

IX. Map of the Island of Gran Canaria (p. 558).

X. Fig. 1. The Cumbres of Gran Canaria (p. 560).
Fig. 2. The Pinar of Gran Canaria (p. 561).

XI. Fig. 1. Desert-like Plains of Gran Canaria (p. 563).
Fig. 2. The "Charco" of Maspalomas, Gran Canaria (p. 564).

XII. *Fringilla teydea polatzeki*, $\frac{9}{10}$ (p. 614).
Fig. 1. Male, on a branch of *Pinus canariensis.*
Fig. 2. Female, on the ground, $\frac{3}{4}$.

Caccabis rufa Red-legged Partridge.

Caccabis rufa australis Tristram, Ibis, 1889, p. 28*; Hartert, Nov. Zool. p. 330 (1901); Thanner, Orn. Jahrb. xxi. p. 98 (1910).

a. ♂. Cueva de las Ninas, 3200 ft. 10th Feb. '11.

Iris light brown, soft part round eye coral-red; bill bright coral-red; feet and legs coral-red.

In 'The Ibis' for 1889 Canon Tristram described the Partridge of Gran Canaria under the name *C. rufa australis*, and in his paper pointed out the differences between this and the European species *C. rufa*. His chief grounds for separating the insular form were: (1) the large size of the bill and greater length of the tarsus; (2) "a band of reddish brown on the nape and hind neck, brighter than in French and English, but not brighter than in Spanish examples"; (3) "whereas in European birds the whole of the rest of the upper parts are reddish brown, in the Canarian the back and upper tail are slaty grey."

Apparently the last two points are founded on his comparison of a single specimen from Canary with the material in the Natural History Museum. As I have now before me the type-specimen of *C. rufa australis* (shot in March 1888), kindly lent to me by Dr. J. A. Clubb, of the Liverpool Museum, and also the entire material contained in the Natural History Museum of both forms, I should like to make one or two remarks on Canon Tristram's observations.

With regard to the size of the beak in examples from Gran Canaria, the only two specimens which I have from this island certainly appear to have slightly larger bills, but this is *not* the case with examples which I have examined from Tenerife. Moreover, the tarsus is almost identical in length with that of European birds.

As regards the second character mentioned I must also differ, the colour of the nape and hind neck agreeing exactly with certain specimens of *C. rufa* shot in England, although it is certainly true that Spanish examples from Coruña and Madrid in the National Collection are considerably brighter and darker throughout, doubtless constituting a dark geographical race. Lastly, the grey colouring of the back and rump at first sight appeared to be constant; when, however, the series of *C. rufa* was laid out according to the months in which the specimens were procured, it was at once apparent that those birds obtained in the first part of the year (January to May) were considerably greyer than examples shot in September, October, and November; in some cases the rump was quite as grey as in the Gran Canaria birds. This grey colouring, therefore, is evidently due to seasonal change and to wear of plumage, and cannot be counted as a distinct character. No doubt specimens obtained in Gran Canaria during the latter months of the year would be as rich in colouring as typical examples of *C. rufa* obtained at the same time. It is almost certain that the Partridge has been introduced into Gran Canaria, and, up to the present, at any rate, I do not consider that it has become sufficiently differentiated to deserve subspecific rank.

The Red-legged Partridge is never seen in the north of the island, but in the vicinity of Mogan and the Cueva de las Ninas is fairly plentiful: here, in small deserted barrancos, thickly overgrown with Euphorbia bushes and prickly pears, where the rays of the sun penetrate with double the usual vigour, several Partridges are sure to be found. In such places they lie very close, and when put up have a happy knack of always doing so at the worst possible moment for the sportsman. They are very strong on the wing, and when disturbed fly for a long distance. Occasionally I have flushed them quite in the pine-forests, but usually they prefer thicker undergrowth than is to be found there. The call is very loud and not unlike that of our British bird. In the early mornings a regular chorus may be heard of birds calling to each other.

On Feb. 12th, 1911, I camped below the Roque Nublo, at 5000 ft., in the Cumbres. This camp was in the wildest spot I have yet seen in these islands (see Pl. X. fig. 1). Towering rocks and precipices rose on every side, and even the scant euphorbia bushes were less in evidence in this hidden valley. I was at once struck by the number of Partridges to be seen; on every side of the valley they were calling one another; the birds, silhouetted against the sky, were perched on some high rock, whence they kept up an incessant babel until nightfall, only to begin again at the first signs of daylight.

Another part of the island, very different in character, where these birds are found is amongst the almond-groves of Tirajana; many are shot there annually by the Spaniards and sent to Las Palmas. I have often seen these birds kept as pets in a small cage, and one which belongs to a shopkeeper in Las Palmas has become remarkably tame.

Examples of *Caccabis petrosa* (? *koenigi*), the form found in Tenerife, Gomera, and Lanzarote, have been recently turned out in Gran Canaria. If they survive the attentions of the Spanish sportsmen I have no doubt they will successfully establish themselves in this island.

COTURNIX COTURNIX. Migratory Quail.

COTURNIX C. AFRICANA. African Quail.

Both these species of Quail are undoubtedly found in the Canary Islands, and although I have not actually any examples from Gran Canaria in my possession, yet it is safe to assume that they both occur there.

Mr. Meade-Waldo obtained both forms in the neighbouring island of Tenerife. The resident subspecies *C. c. africana* interbreeds with the migratory Quail *C. coturnix*, and consequently hybrid birds in intermediate plumage are often seen. Male examples of the resident subspecies are readily distinguished from *C. coturnix* by having "the lores, sides of the head, chin, and throat bright rufous-chestnut," instead of pure white with a black anchor-shaped mark down the middle. The females are indistinguishable.

Quails, many of which are resident in the island, are, I believe, not nearly so rare in Gran Canaria as they appear to be. They are very hard to flush from the fields of beans, &c., which they frequent, and without dogs are easily passed over. Shooting, in February 1912, above San Matéo, I flushed a couple of these birds in a dense field of beans, which reached to my waist. They were the first I had actually shot myself in the island. They uttered a sharp cry of alarm as they rose, and flew strongly and fast. One bird which fell was unfortunately lost. The Spaniards hunt them with dogs.

PTEROCLES ARENARIUS. Black-breasted Sand-Grouse.

Pterocles arenarius Bolle, J. f. O. 1857, p. 332.

I have never seen the "Sand-Grouse" in Gran Canaria, nor have I heard of any having been shot in recent years. Proof that it was once looked upon as an habitué is given by Dr. Bolle, who, writing in 1857, remarks: "Gangas are found in the S.E. of Canaria in the neighbourhood of Juangrande and Sardinas, and are by no means uncommon; but the people there were uncertain whether they bred in the country or only came across from Tierra del Moro. The English people in the island call them 'grouse,' because of their resemblance to the Tetrao of their native land."

No doubt stragglers occasionally fly over from Fuerteventura to the south of Gran Canaria. They are resident in the former island and by no means uncommon.

COLUMBA LIVIA. Rock-Dove.

Columba livia Thanner, Orn. Jahrb. xxi. p. 98 (1910).

a. ♀. Near Tirajana. 10th April '09.

b. ♂. Pina Pajonal (Cueva de las Ninas). 24th Jan. '10.

c. ♂. Pinar near Juncal (4000 ft.). 8th Feb. '11.

d–f. ♂ ♀ ♀. Maspalomas village. 25th Feb. '12.

Iris reddish orange; bill black; feet pinkish claret-coloured. Total length in the flesh 12 inches.

Testes of specimen *c* were very large.

The Rock-Pigeon is most numerous everywhere in the island. The birds are very shy, and unless shot flying are not easy to obtain; they are very plentiful on the west coast and roost in the caves of the cliffs at Guanarteme, every evening flying down from the country to spend the night, and dropping like stones from the heights above. Excellent shooting can be obtained by anyone hidden in the cliffs or stationed in a boat beneath.

In the Pinar Pajonal these were the only Pigeons seen, and, indeed, they are the only ones now left in the island, *Columba bollii* having disappeared with the laurel forests.

At Maspalomas and on the plains of Juan Grande these Pigeons are found literally in thousands, countless flocks frequenting the fields of grain in the neighbourhood of Maspalomas village: indeed, it is always a matter of great surprise to me that there are any seeds left to flourish. They nest undisturbed in the caves of the steep barrancos which run inland, and in the high cliffs on the coast.

TURTUR TURTUR. Turtle-Dove.

Turtur turtur Bolle, J. f. O. 1857, pp. 331–332; Thanner, Orn. Jahrb. xxi. p. 98 (1910).

A summer migrant to the island. Herr von Thanner records this bird from Aguineguin, where he noticed the "first" arrival on March 13th. It is not found here in the winter months. A Turtle-Dove was seen in the summer of 1911 on the fields between Las Palmas and the Port.

There is one example, stuffed, in the Las Palmas Museum.

FULICA ATRA. Common Coot.

Fulica atra Thanner, Orn. Jahrb. xxi. p. 100 (1910).

From the description which Herr von Thanner gave of the "Charco" at Maspalomas I expected to find several pairs of both Coots and Moorhens. They were, on the contrary, extremely rare. In fact, only on one occasion did I catch a fleeting glance of a bird which I took to be of this species. The conditions are ideal for Coots and Waterhens to breed undisturbed. Herr von Thanner records it as breeding in the lagoons of Maspalomas and also in the little "Charco" of Arguineguin.

GALLINULA CHLOROPUS. Waterhen.

Gallinula chloropus Thanner, Orn. Jahrb. xxi. p. 100 (1910).

The Moorhen is said by Herr von Thanner to be found in the "Charco" at Maspalomas. He also establishes the species as a breeding bird and states that he received five eggs which had been taken at Maspalomas. I can only surmise that the parent birds were shot after the eggs had been taken, as there were certainly no Waterhens in the "Charco" at the time of my visit. Both this and the preceding species were known to the natives in the neighbourhood.

OCEANODROMA CASTRO. Madeiran Fork-tailed Petrel.

The Madeiran Fork-tailed Petrel is found in the seas of the Canary Archipelago, and Mr. Nicoll saw large numbers of it before reaching Gran Canaria, when on board the 'Valhalla.' Mr. Ogilvie-Grant found this Petrel breeding on the Desertas, Porto Santo, and the Azores. There are no records of its having bred on any of the Canary Islands.

Doubtless several other species of Petrels frequent the seas round Gran Canaria. I have only mentioned those which have been seen actually within sight of the island.

BULWERIA BULWERI. Bulwer's Petrel.

I have never seen this Petrel in the island myself, though it must, of course, occur there. Mr. Meade-Waldo writes to me that during his residence in the islands he found a pair breeding in a cave near Arucas. This town is situated some distance from the coast.

PUFFINUS KUHLI. Mediterranean Shearwater.

a, *b*. ♀. Confital Bay. 17th Nov. '11.

The two specimens recorded above were obtained for me in November by Mr. P. R. Pittard, who has also supplied me with the following note on the species:—"Numbers of these birds frequented Confital Bay from October 1st till November 15th, 1911. The fishermen affirm that they 'turn up' every year about the same time; they appeared quite fearless, and were skimming over the sea quite close to the reef. None came within the sheltered water."

Herr von Thanner mentions that he constantly saw examples of this Shearwater in his journeys round the coast. Mr. Nicoll also obtained a single specimen off Gran Canaria when he visited the island with Lord Crawford in the 'Valhalla.'

P. kuhli breeds in the Azores (*Godman*), Madeira and Great Salvage Islands (*Ogilvie-Grant*), and Porto Santo (*Schmitz*).

Mr. Meade-Waldo, writing in 'The Ibis,' 1903, states that he has seen flocks of many thousands on the water between Gran Canaria and Fuerteventura. I noticed large numbers of these Petrels skimming about in the neighbourhood of the Isleta during a flying visit which I made to the island at the beginning of June of this year (1912).

LARUS FUSCUS, subsp.?

Larus fuscus subsp.? Lowe, British Birds, vol. vi. p. 5 (1912); Bannerman, Bull. B. O. C. xxix. p. 121 (1912).

a–c. ♀ ♀ ad. et imm. Las Palmas Harbour. 20th Feb. '12.

Iris clear amber; bill yellow and crimson; legs banana-yellow.

Dr. Lowe has recently separated the Lesser Black-backed Gull of the British Islands from typical *L. fuscus*, and has named this subspecies *L. fuscus britannicus*. I was privileged to examine along with Dr. Lowe the large series of Lesser Black-backed Gulls which he had at his disposal, and the only specimens which did not agree with either form were the birds which I had myself collected in the island of Gran Canaria.

As Dr. Lowe has already gone into the matter as thoroughly as is at present possible, I will quote his remarks in full:—"I have examined Lesser Black-backed Gulls from the Canaries, Tenerife, and the Grand Canary (Bannerman Coll.), and one example in the British Museum collection which was taken at Valencia. These birds appear to differ from both of the above-described races*; but whether they are representatives of another race meriting the distinction of subspecific rank, the material at present to hand is too meagre to allow me to say. It may, however, be pointed out that the Lesser Black-backed Gull breeds in at least one locality off the Moroccan coast (Alboran Island, *Lilford*), and extends southwards along the West African shores as far as Bonny (*Saunders*) ; so that it is very possible that these local birds wander in winter to the Canaries and Madeira, or to places like Valencia on the Mediterranean shores, where they may be found along with representatives of the light-backed or more northerly race, *Larus fuscus britannicus*. These points I am now endeavouring to clear up."

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* *Larus fuscus* and *Larus fuscus britannicus*.

I may remark that the colour of the back in specimens from the Canary Islands is intermediate between that of *L. fuscus* and *L. f. britannicus*.

I paid a flying visit to Gran Canaria on June 1st of this year and had hopes of procuring a series of the bird in question. However, in this I was disappointed, as the harbour was entirely deserted by Gulls, and, I was told, had been so for at least a month. At the time when I left Las Palmas previously, on March 11th, the Gulls were very plentiful, as the following notes which I have made during many visits to this island will prove.

In the winter months the Lesser Black-backed Gull is the commonest species frequenting Las Palmas harbour, where a number of both adult and immature birds may always be seen round the shipping or else flying leisurely along the coast. Every evening before dusk I used to notice a long line of these Gulls crossing the isthmus of sand which joins the Isleta to the mainland, and finally disappearing over the precipitous ground which borders Confital Bay, to roost in the high cliffs of Guanarteme. Whether they breed in the islands I have been unable to discover. There seems no reason why they should not do so, and especially on the little island of Alegranza. Unfortunately, no one has yet visited the outlying islets in the breeding-season. *Larus cachinnans*, on the other hand, is said by Mr. Meade-Waldo to breed on most of the islands.

LARUS CACHINNANS. Yellow-legged Herring-Gull.

Larus cachinnans Thanner, Orn. Jahrb. xxi. p. 99 (1910).

The Yellow-legged Herring-Gull is found here in some numbers, although at times it seems to quite forsake the harbour of Las Palmas. It is not nearly so plentiful as the Lesser Black-backed Gull. Occasionally a few may be seen flying from the direction of Guanarteme towards the Isleta. On the south coast a number were noticed in company with Lesser Black-backed Gulls. Mr. Meade-Waldo found it breeding on the neighbouring islands. On the 1st of June, 1912, I saw a single Yellow-legged Herring-Gull in Las Palmas Harbour. All Gulls had deserted the harbour during the previous month.

LARUS RIDIBUNDUS. Brown-headed Gull.

a, b. ♂ ♀ imm. Las Palmas Harbour. 20th Feb. '11.

c. ♂ imm. Las Palmas Harbour. 20th Feb. '11.

Iris chocolate-brown; bill reddish-horn-coloured; legs dark pink.

Total length in the flesh 14·7 and 15 inches; expanse 35 inches.

These birds are all in the immature plumage of the second (?) year. Numbers of them were to be seen in Las Palmas Harbour throughout February. I did not observe a single fully adult bird.

STERNA HIRUNDO. Common Tern.

Sterna hirundo Bolle, J. f. O. 1857, pp. 341–344; Thanner, Orn. Jahrb. xxi. p. 99 (1910).

As Herr von Thanner remarks, the Common Tern has decreased to such an extent of late years that it may be almost considered to have disappeared. I myself have never seen this bird at all, although stragglers doubtless visit the shores of the island from time to time, especially in the summer-time. In the years when Dr. Bolle visited Gran Canaria he found the Common Tern breeding near Maspalomas. The sand-hills there are an ideal spot for its nesting-grounds, and it is easy to believe that in olden days a very thriving colony was in existence. The cause of the disappearance can only be put down to the universal and regular "egg-robbing" to which these birds were subjected. Herr von Thanner was told by the villagers of Maspalomas that "baskets-full of eggs were taken away and eaten"; and I can well imagine these short-sighted people taking clutch after clutch until the poor birds were literally driven away to a more hospitable land wherein to rear their young in peace. In any case the district of Maspalomas has not changed in itself, and is as suited to their requirements at the present day as it was sixty years ago.

STERNA CANTIACA. Sandwich Tern.

Sterna cantiaca Webb, Berthelot, et Moquin-Tandon, 'Histoire Naturelle des Iles Canaries' (Ornithologie Canarienne, p. 41, 1841).

a–c. ♂ ♂ ♀. Las Palmas Harbour. 28th Feb. '11.

Iris dark chocolate, pupil dark blue; bill black, tip light yellowish horn-coloured; feet black.

Total length in the flesh 15·8 inches.

The rosy tinge on the feathers of the breast and inner webs of the primaries was more pronounced than on any Tern which I had shot previously.

The Sandwich Tern is by no means a common species on the shores of Gran Canaria. The Spanish boatmen affirm that it visits the harbour of Las Palmas once a year—in the month of February. Certainly I have not seen it on any previous occasion, and Herr von Thanner does not mention the species in his paper, though he records *Sterna hirundo*, which I have not met with myself. Webb and Berthelot gave the habitat of this species as Fuerteventura and Lanzerote. The Sandwich Tern is said to breed on the island of Alegranza.

My three examples are fully adult birds in winter plumage, the forehead being white with a few streaks of black and the nape and hinder part of the crown black. The head becomes entirely black about April. These birds have all assumed new primaries, and the white margins to the inner webs are continued to the tip of each feather.

Cursorius gallicus. Cream-coloured Courser.

Cursorius gallicus Hartert, Nov. Zool. 1901, p. 332; Thanner, Orn. Jahrb. xxi. p. 98 (1910).

a, b. ♂ ♀. Plain between the "Charco" and Maspalomas Village. 25th Feb. '12.

c, d. ♂ ♀. Sandhills near Maspalomas Village. 28th Feb. '12.

Iris dark brown; bill black; feet white, soles yellow.

The true home of the Courser in Gran Canaria is on the sandy plains which surround the "Charco" of Maspalomas. Here it breeds undisturbed, and, I am glad to say, the numbers must be considerably on the increase. At the time of my visit, in February 1912, there were, I should say, several hundred birds in the vicinity. I did not meet with any until within about a mile of the "Charco," and there they became numerous. At the time we were passing over an elevated sandy plateau close to the sea. This in turn gave way to sand-dunes, with which the birds harmonized so exactly in colour that they were difficult at first to make out. They usually betrayed their presence by running some time before taking flight. When flying the black underwing is most conspicuous. They were seldom seen in pairs, but used to feed in small flocks of half a dozen birds or more scattered over the ground "in open order," with several yards between each bird. As we drew near to a flock they would all run swiftly behind some rise in the ground and then remain still. I found them ridiculously easy to obtain, never flying far even when shot at. The cry consisted of a sharp piping note twice repeated, and was often uttered while on the wing. Mr. Meade-Waldo discovered Coursers breeding in Fuerteventura, and took the young in down on March 24th. In Gran Canaria they did not appear to have commenced laying by the end of February. Herr von Thanner met with these birds between Telde and Arguineguin, and although I did not actually see any myself until after leaving Juan Grande, yet there is no reason why they should not occur there, the ground being quite suitable to their habits.

VANELLUS VANELLUS.

I have only once seen this bird in Gran Canaria, a solitary example flying over the golf-links at Las Palmas. This was in the winter months, but I have mislaid the actual date. Mr. Meade-Waldo mentions it as a regular winter visitor, but says he only noticed it in Tenerife and Fuerteventura.

SQUATAROLA HELVETICA. Grey Plover.

a, b. Maspalomas Beach. 22nd Feb. '12.

Iris brown ; bill black ; feet greenish black.

These examples were shot out of a small flock of about seven birds which were feeding by the water's edge on a shingly beach near Maspalomas. This is the only occasion on which I have seen these birds in Gran Canaria. Mr. Meade-Waldo mentions that they are "regular winter visitors to the eastern islands."

STREPSILAS INTERPRES. Turnstone.

a. Sex? Reef in Confital Bay. 27th Jan. '11.

b, c. ♀ ♀. Maspalomas Beach. 29th Feb. '12.

Iris dark reddish brown ; bill dull black : feet reddish orange.

Total length in the flesh 8·4 and 8·5 inches.

Turnstones are fairly numerous near Las Palmas, and large flocks may be found feeding on the reef in Confital Bay at low water. Occasionally small parties fly across the strip of sand on to the other coast, where they search for food near the old castle in full view from the noisy port-road. If approached they are exceedingly shy, and are hard to obtain in consequence. Occasionally they may be found frequenting the water-tanks beyond the golf-links, but never more than singly or in pairs.

Herr von Thanner seems not to have met with this species, but it frequents the rocky parts of the coast north of the "Charco." An individual which I had shot fell some forty yards out at sea. The waves were slowly drifting the specimen to the shore, when a Yellow-legged Herring-Gull, passing along the coast, swooped down and picked the carcase out of the water, carrying it some way out to sea, when it let its prey drop well out of my reach. Mr. Meade-Waldo was informed by the peasants that Turnstones were breeding in the eastern islands; he himself saw them paired in June. This may be the case, as they undoubtedly breed in the Azores.

Calidris arenaria. Sanderling.

a. ♂. Charco of Maspalomas. 24th Feb. '12.
b, c. ♂ ♀. ,, ,, 27th Feb. '12.
d. ♀. ,, ,, 29th Feb. '12.

Sanderlings were found in February 1912 frequenting the mouth of the "Charco" in small flocks. They are migrants to the island; I have never seen them in the north near Las Palmas.

Tringa hypoleuca. Common Sandpiper.

a. ♀. Las Palmas. Jan. '11.
b, c. ♀ ♀. Charco, Maspalomas. 23rd & 27th Feb. '12.

Iris dark blue with a reddish tinge; bill black; feet grey-green.

Total length in the flesh 8 inches; expanse of wings 13·6 inches.

Herr von Thanner does not record the Common Sandpiper from Gran Canaria. On the rocks between Las Palmas and the Port, and also on the reef in Confital Bay, it is most plentiful. I saw this species in every month which I have been in the island, December to April inclusive, and I have no doubt that it is resident throughout the year. I several times saw Common Sandpipers in the "Charco" at Maspalomas, where they frequented the edges of the stagnant pools. They probably breed there.

Tringa alpina. Dunlin.

a. ♀. Mouth of the "Charco," Maspalomas. 23rd Feb. '12.

Dunlins are occasionally found on migration, but even then are not by any means plentiful on this island.

TOTANUS GLOTTIS. Greenshank.

LIMOSA LIMOSA. Bar-tailed Godwit.

Both these species are occasional visitors to Gran Canaria, where they may be seen on the stony beach near Elder and Fyffe's fruit-store at Maspalomas.

ÆGIALITIS CANTIANA. Kentish Plover.

Ægialitis cantiana Hartert, Nov. Zool. 1901, p. 332.

Ægialitis cantianus Thanner, Orn. Jahrb. xxi. p. 99 (1910).

a. ♂. Las Palmas. 8th April '09.
b. ♂. ,, 15th Jan. '10.
c. ♂. ,, Jan. '11.
d–h. ♂ ♂ ♀ ♀ ♀. Shore near the Charco, Maspalomas. 23rd–26th Feb. '12.

Iris purplish blue; bill black; feet pale slate-coloured.

Total length in the flesh 6½ inches; expanse of wings 12 inches.

The Kentish Plover is a common species on the shore near Las Palmas. It is very tame, small flocks running along in front of passers-by within a few dozen yards, and then only flying a short distance along the edge of the waves. They are resident in this island, and on the Maspalomas coast and at the mouth of the "Charco" were by far the most plentiful of all the Waders. They undoubtedly breed in the neighbourhood, and a bird which I disturbed on the 29th of February behaved exactly as if it had a nest close by, although I was unable to find it.

ÆGIALITIS DUBIA. Lesser Ringed Plover.

a. ♂. Las Palmas. 19th Jan. '10.

The Lesser Ringed Plover is so difficult to distinguish on the wing from the common and larger bird that it is probably often mistaken for that species*. This example is the only one which I have shot in the island. A pair were found breeding in April 1911. Two eggs were taken and sent to me by my friend Mr. Pittard. He writes that he procured the eggs in the barranco behind the Catalina. No nest was made, but the eggs placed in a hollow scooped out in the ground more than a mile from the sea. Although Mr. Pittard watched for a considerable time he saw no signs of the birds themselves, and eventually took the eggs, which otherwise would certainly have fallen a prey to the watchful Spanish boys.

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* The Lesser Ringed Plover (*Æ. dubia*) is easily distinguished from the allied species (*Æ. hiaticola*) by its having the shaft of the first primary white and *the remaining shafts black*, while in the Ringed Plover all the primary shafts are white.

ÆGIALITIS HIATICOLA. Ringed Plover.

Ægialitis alexandrinus Thanner, Orn. Jahrb. xxi. p. 99 (1910).

a, b. ♂ ♀. Las Palmas. 5th Sept. '10.

c. ♀. Las Palmas. 10th Jan. '11.

d. ♂. Shore of the Charco, Maspalomas. 23rd. Feb. '12.

Iris dark bluish brown; bill black; feet orange, nails black.

Total length in the flesh 7 inches; expanse of wings 14·8 inches.

The testes of specimen *d* were minute.

The Ringed Sand-Plover is very plentiful on the coast on both sides of the sand-banks which separate the Isleta from the main island, and may be constantly seen winging its way over the houses from the one shore to the other. It is often to be found, in company with the Kentish Plover, frequenting the large water-tanks about two miles inland. These tanks are often in a semi-dry condition, and at high tide the shore-birds resort to them while the reefs near Confital Bay are covered.

In February of 1912 for some reason these birds entirely forsook the sands between the Port and town of Las Palmas. In former years, as I have mentioned, this was a favourite resort of these Waders. I found them in small numbers along the sandy coast near Maspalomas. They are migrants to the island both in spring and autumn.

NUMENIUS PHÆOPUS. Whimbrel.

a. ♂. Las Palmas. 12th June '11.

Iris dark hazel; bill—upper mandible dark horn-coloured, lower mandible lighter; feet dark slate-coloured.

Total length in the flesh 17·6 inches; expanse of wings 32 inches.

I have seen these birds occasionally on the reef in Confital Bay, whence they occasionally wander over the isthmus to the Las Palmas shore. In the south of the island single examples were often noticed on the rocky parts of the coast. I observed a pair of these birds on the rocks near the Santa Catalina Castle on the 1st of June, 1912. They were very tame and allowed me to approach them within twenty-five yards.

ŒDICNEMUS ŒDICNEMUS. Thick-knee.

Œdicnemus œdicnemus œdicnemus Hartert, Nov. Zool. 1901, p. 331; Thanner, Orn. Jahrb. xxi. p. 98 (1910).

Œdicnemus œdicnemus insularum Sassi, Orn. Jahrb. 1908, p. 32.

a. ♂. Plateau above Las Palmas. 15th March '11.

b. ♀. " " 12th Feb. '12.

c. ♂. Plain above the Charco, Maspalomas. 23rd Feb. '12.

Iris bright clear amber, pupil dark; bill—basal half yellow, extremity black; feet dull sulphur-yellow.

Sassi's description of the Canary Island Thick-knee, which he calls *Œdicnemus œdicnemus insularum*, does not apply to the three examples which I obtained in Gran Canaria. I have compared my specimens with typical *Œdicnemus œdicnemus* and with examples from Tenerife, from *both* of which it differs strikingly in being much whiter beneath, and, in consequence, the markings of the breast are more clearly defined. The throat is likewise as white as the belly; the upper parts are darker and not so reddish sand-coloured; moreover, the dark shaft-streaks to the feathers of the crown which give to the head such a streaked appearance are heavier. In size the bird from Gran Canaria is smaller, as can be seen from the following measurements of the wing. Examples which Mr. Meade-Waldo shot in Tenerife I am unable to separate from European birds.

Gran Canaria.	Tenerife.	Europe.
♂ 23 mm.	♂ 25 mm.	♂ 24 mm.
♀ 22·5 „	♀ 24 „	♂ 23·5 „
♂ 22·2 „	♀ 22·8 „	♂ 23·3 „

The "Alcaravan," as the Norfolk Plover is called in the Canary Islands, is a resident species found in some numbers in suitable places in the island. In certain barrancos near the Las Palmas golf-links I have flushed no less than eight birds in as many hundred yards, but this is unusual, as they are known to prefer escape by running, or lying perfectly still with the head and neck stretched before them flat on the ground. At dusk they are very noisy, and at this time are continually heard calling. Part of the ground between the Port and town of Las Palmas is known as "Alcaravaneras" from the number of these birds which frequent it, although in later years they have become more scarce, or, at any rate, less often heard on these fields. In the central part of the island they do not appear to be nearly so plentiful, as I have seldom heard the call when camping on the higher ground. "Alcaravans" were numerous on the sandy plateau between Elder and Fyffe's fruit-store on the coast and the "Charco" at Maspalomas, where a number of them were flushed from a belt of *Euphorbia*.

They breed in April, and I have an egg taken near Las Palmas which appears to be smaller than usual.

HOUBARA UNDULATA. Houbara Bustard.

Otis undulata Meade-Waldo, Ibis, 1893, p. 202.

Mr. Meade-Waldo says that "the Houbara is very occasional in Gran Canaria." It is a resident species in Fuerteventura, and stragglers at times may find their way over to the sandy plains of Maspalomas. The country there is well suited to their needs, but doubtless such a large bird would very soon be noticed and fall a prey to some watchful gunner. I could hear no news of any having been seen during my visit to Maspalomas in February 1912.

Ardea cinerea. Heron.

Ardea cinerea Thanner, Orn. Jahrb. xxi. p. 99 (1910).

Herons are often to be found in the neighbourhood of the Isleta, and I have several times noticed them fishing on the reef, which is exposed at low tide in Confital Bay. In January 1911, two were seen there, together with a Curlew and several flocks of small Waders; on being disturbed they flew to the mainland.

Westwards of Confital Bay a small rock lies exposed some five hundred yards from the Point, and this is a very favourite place for Herons to spend the day. One day in February 1912 I counted as many as six at once; they roost in the high cliffs towards Guanarteme. In the south of the island Herons were noticed daily on the Maspalomas coast. One bird which frequented the "Charco" was always to be seen in the same place. Herons doubtless breed in the neighbourhood, and Herr von Thanner mentions a young bird unable to fly which was caught the year previous to his arrival. During a visit which I paid to the island in June of this year, I was informed that a pair of Herons had built a nest on a rock off the Isleta; unfortunately I had not time to visit the spot myself.

Anas marmorata. Marbled Duck.

Anas marmorata Thanner, Orn. Jahrb. xxi. p. 100 (1910).

a. ? "Charco," Maspalomas. 24th Feb. '12.

Iris dark; bill black, greenish at base; feet greyish-green, webs black.

Total length in the flesh 16·2 inches.

Ducks are generally to be found after a heavy gale frequenting the tanks beyond the golf-links, but hitherto I have failed to procure any. They are occasionally shot at Maspalomas, where Herr von Thanner procured specimens. I have had no means of ascertaining whether the large flock of ducks which visited Las Palmas in March 1911 were of this species or not. Herr von Thanner states that this Duck "undoubtedly breeds at Maspalomas," but his evidence does not seem very conclusive. Other species of Ducks certainly visit the "Charco" occasionally.

SULA BASSANA. Gannet.

Gannets undoubtedly wander to the shores of Gran Canaria occasionally, but are not often noticed.

NEOPHRON PERCNOPTERUS. Egyptian Vulture.

Neophron percnopterus Thanner, Orn. Jahrb. xxi. p. 86 (1910).

a. ♂. Aguimes. 22nd Feb. '12.

b. ♀. Maspalomas Village. 25th Feb. '12.

Iris dark orange; bill—tip black, base of mandible bright yellowish orange; feet yellow.

Total length in the flesh 25·2 inches; expanse of wings 59·5 inches. Weight in the flesh of specimen (*a*) 4 lbs. 7½ oz., (*b*) 4 lbs. 8 oz.

Egyptian Vultures are found throughout the island. In the neighbourhood of Las Palmas they are very plentiful. Several of these unwieldy-looking birds nest and roost in the barrancos just above "the Catalina," and spend much of the day wheeling in hugh circles above the golf-links. In the evenings they fly down to the beach, where they may be very closely observed walking just below the windows of the Beach Club, and shewing no fear whatsoever. Up in the hills they are not so easily obtained, unless one chances to disturb them when feeding. They appeared to be plentiful in every part of the island that I visited, and were very numerous on the plains south of Aguimes. The two which I procured were both fine adult birds. The nest is a clumsy structure built on a ledge of rock and generally very hard to reach. These Vultures are indescribably filthy eaters and do an enormous amount of good in scavenging.

HALIAËTUS ALBICILLA. Eagle.

On 23rd of December, 1908, while riding from the village of San Matéo to Teror I noticed a large bird high up in the sky which, even at that immense height, seemed to stand out against the few Egyptian Vultures and Kites which were to be seen. I have little doubt that this was a Sea-Eagle (*Haliaëtus albicilla*), as stragglers of that species occasionally visit the Canary Islands. The bird came considerably nearer to me than when I first observed it, and I was able to watch its evolutions for some time through strong Zeiss glasses. Such an occurrence in Gran Canaria is very rare, and I have not seen an example since.

Buteo buteo insularum. Buzzard.

Buteo buteo insularum Floericke, Mitteil. österr. Reichsb. iii. 1903, p. 64*; Thanner, Orn. Jahrb. xxi. p. 88 (1910).

Buteo buteo subsp.?, Polatzek, Orn. Jahrb. 1908, p. 111.

I have been unable to see Floericke's description of this subspecies.

In the Cumbres and the south of the island the Buzzard is fairly plentiful. I have never met with any of these birds lower than the Santa Brigida in the north. At the latter place, however, a pair were generally to be found in the Vega, and their shrill whistling cry could be heard frequently as they hunted the sides of the immense barranco below the picturesque Spanish town. To obtain specimens it is necessary to spend a few days encamped on the "Cumbres," where, if one is lucky, a few chance shots may be obtained. They are very wary, and are fond of the most inaccessible rocks in this wild stretch of mountainous country. A resident species throughout the year, the numbers are increased occasionally by an influx of migrants.

Falco peregrinus. Peregrine Falcon.

Peregrine Falcon, Tristram, Ibis, 1889, p. 17.

Falco peregrinus Thanner, Orn. Jahrb. xxi. p. 87 (1910).

There are two male specimens of the Peregrine Falcon in the Las Palmas Museum, said to have been shot near Firgas. At the present time this species is almost exterminated in Gran Canaria, but Herr von Thanner saw a male example at Maspalomas in 1909, and mentions that there was a nest inland. Dr. Tristram saw a single bird close to the Sitio de

Arriba in 1888, and a pair in the Barranco de la Virgen near Firgas. They have certainly not increased since then, and I have never once met with the species. However, the Spaniards engaged in the fruit-store near Maspalomas know the bird by sight, and say that it occasionally visits this part of the coast, but is very rare.

ACCIPITER NISUS. Sparrow-Hawk.

Accipter nisus Thanner, Orn. Jahrb. xxi. p. 87 (1910).

Herr von Thanner only saw one example of the Sparrow-Hawk in Gran Canaria. This was a female, in the Pinar near the Cueva de las Ninas, which he does not appear to have obtained. I have never seen a single bird, although I have twice been encamped near the Cuevas, and have been to many parts of the island which Herr von Thanner does not appear to have visited. His surmise that it is "very rare" may be taken as absolutely correct. In Tenerife I am told that it is by no means uncommon.

TINNUNCULUS TINNUNCULUS CANARIENSIS. Canarian Kestrel.

Tinnunculus tinnunculus canariensis Koenig, J. f. O. 1889, p. 263 *; Thanner, Orn. Jahrb. xxi. p. 88 (1910).

a. ♀. Las Palmas. Dec. '08.

b, c. ♂ ♂. Between Aguimes and Tirajana. 10th April '09.

d. ♂. (Santa Bartolomé), Paso de la Plata, 5500 ft. 22nd Dec. '09.

e. ♀. Pinar Pajonal. 23rd Jan. '10.

f. ♀. Mogan, 100 ft. 25th Jan. '10.

g. ♀. Las Palmas ?

h. ♂. Above Juncal. 6th Feb. '11.

i. ♂. Roca Nuhlo, 5000 ft. 12th Feb. '11.

k. ♂. Cumbres, 5650 ft. 12th Feb. '11.

l. ♂. San Matéo ; died in captivity. 21st Feb. '11.

m. ♀. Maspalomas Village. 25th Feb. '12.

Iris brown ; bill bluish horn-coloured, cere yellow ; feet yellow.

Total length [♂] 12·3 inches ; [♀] 13·5 inches.

This is a dark-coloured race found in the Canary Islands and Madeira.

The Kestrel is extremely abundant throughout the island, and wherever my travels in Gran Canaria took me it was seldom, indeed, that one or more specimens were not in sight; perhaps they are most plentiful in the Monte district, but numbers are also found in the Cumbres up to the highest point, and also hunting over the wide plains on the west. Several may also be seen frequenting the hillsides behind the Catalina Hotel. Resident throughout the year, their numbers are largely increased by migrants in the spring, but whether the latter remain to breed in the island I have been unable to ascertain. These birds are mostly very richly coloured. They roost in the barrancos which run back from the coast, and nest in the crannies in the rocks and in the tops of palm-trees. The staple food of this species in the summer consists, I believe, of lizards, hundreds of which are found everywhere, but from December to March, when the weather is cool, very few lizards are to be found, and the Kestrels then have recourse to other food. In the crop of specimen *h* I found a large number of black ants, and in the gizzards of specimens *i* and *k* the larvæ of a species of *Noctua* were discovered.

MILVUS MILVUS. Common Kite.

Milvus ictinus Thanner, Orn. Jahrb. xxi. p. 88 (1910).

a. ♀. Cueva de las Ninas, 3000 ft. 9th Feb. '11.

b. ♀. Maspalomas "Charco" (sea-level). 29th Feb. '12.

Iris light amber; bill horn-coloured, base of lower mandible, cere, and gape yellow; feet sulphur-yellow.

Total length in the flesh 24·4 inches; expanse of wings 60 inches; wing 19 inches.

Mr. W. P. Pycraft, who has closely examined both the above-mentioned specimens, has kindly supplied me with the following notes on the plumage:—"Specimen *a* procured at the Cueva de las Ninas differs conspicuously from specimen *b* obtained at the 'Charco' of Maspalomas in having the breast of a pale, instead of a dark rust colour, and narrow instead of broad black longitudinal stripes; the bars across the tail-feathers are obsolete and the rust-coloured areas on the wing-coverts, hind-neck, and tail are much paler. The whole plumage is much faded—'worn to rags,' even more than the Maspalomas specimen, but, as in this example, the four outermost primaries are almost new and black, the remaining ones are much frayed and are faded to rusty brown. The outer tail-feathers have all lost an inch or two from their tips. On the hind-neck of this bird are a few feathers which are of a much darker rust-colour, and have much broader longitudinal stripes than the neighbouring feathers, from which they also differ in being almost unworn. Are these new feathers, or feathers which from their position have escaped wear and tear from exposure? Similarly, at the elbow-joint and on the lower back the feathers shew no signs of wear whatsoever."

Kites are very plentiful in the island; over almost every village a pair of these fine birds can be seen diligently searching for food. They appear to be found in Gran Canaria both in the winter and summer months. I first saw them in March, and subsequently during all my visits to the island. They are much more fearless than the Buzzard, and occasionally come down as low as Las Palmas, where I have seen them soaring over the sea in company with Egyptian Vultures. I found them plentiful in the Cumbres, and also in the extreme south of the island, where they were much more fearless than in the north. The arrival of a number of fishing-boats on the shore near Maspalomas was the signal for several Kites to appear, swooping down so close to the boats that I could almost have struck them with an oar.

Dr. Tristram ('Ibis,' 1889, p. 22) remarks that the Kite is a summer migrant, retiring in the winter. I do not think this is the case, as I have found it in Gran Canaria in December, January, February, and March. Very possibly a partial influx takes place in the spring, and a corresponding decrease in their numbers is noticeable in the winter months, but even then they are by no means rare.

Pandion haliaëtus. Osprey.

Pandion haliaëtus Thanner, Orn. Jahrb. xxi. p. 86 (1910).

a. ♂. Maspalomas. 23rd Feb. '12.

b. ♂. „ 27th Feb. '12.

Iris bright yellow; bill black, base whitish; feet greenish white.

Total length in the flesh 23 inches; expanse of wing 64 inches. Weight in the flesh 3 lbs. 9 oz.

These magnificent birds are, I am glad to say, by no means rare. They frequent the coast from Maspalomas westwards, and during my stay at the "Charco" I saw several individuals, besides the two which I obtained. They were all quite fearless, and while watching one flying leisurely along the coast I was lucky enough to see the bird suddenly dive with a loud splash completely below the water. In the space of three or four seconds it reappeared holding a fairly large fish in its talons. Its legs were stretched out to their utmost with the weight of the fish, and in this manner it flew slowly towards the shore. Another pair inhabit the cliffs between Arguineguin and Mogan. Herr von Thanner observed the Osprey on all the coasts which he visited, and mentions a nest in the high walls of a barranco, far inland, to the east of Maspalomas.

Strix flammea. Barn-Owl.

Strix flammea Thanner, Orn. Jahrb. xxi. p. 89 (1910).

Strix flammea gracilirostris Hartert, Bull. B. O. C. xvi. p. 31.

I have met with this Owl only once during my wanderings in the island, though it is said by Herr von Thanner to be found in the north. The single specimen used to frequent the country near the Cueva de las Ninas, but we never managed to secure it, although it was often heard and once seen sitting on the ground in the bright moonlight close to our tent by my companion Mr. P. R. Pittard.

Dr. Hartert has described a subspecies of the Barn-Owl from Fuerteventura and Lanzarote which he calls *Strix* *flammea gracilirostris.* I have not been able to compare Barn-Owls from Gran Canaria with the type specimen from Fuerteventura, so am unable to state whether the bird found in Gran Canaria is similar to the form found in the Eastern Islands. Two badly stuffed examples in the Las Palmas Museum certainly struck me as having very slender bills.

ASIO OTUS CANARIENSIS. Long-eared Owl.

Asio otus canariensis Madarasz, Orn. Monatsb. 1901, p. 54*; Hartert, Nov. Zool. 1901, p. 329; Thanner, Orn. Jahrb. xxi. p. 89 (1910).

a–e. ♂ ♂ ♂ ♂ ♀. Telde. 9th Feb. '10.

The Canarian Long-eared Owls differ from the European species *Asio otus* in two essential points:—

(1) They are considerably darker on the upper parts and to a lesser degree on the under side.

(2) A marked difference is at once noticeable in the size of the birds, *Asio otus canariensis* being the smaller. The wing-measurements of the eight examples which I have compared are all 1–1½ inches shorter than in typical examples of *Asio otus.*

Madarasz in his original description claims another character, *i.e.* that "the light portion of the base of the primary quill is divided in the centre of the inner vane by means of a dark band." This character is not in the least borne out by the examples which I have examined.

The Long-eared Owl is far more plentiful than the preceding species. The five specimens from Telde were all obtained at once and sent to me in the flesh. I have also seen one at Tafira. It breeds in the island, and Herr von Thanner mentions one which built a nest in a bushy young palm-tree in a swamp at Maspalomas. In 1911 Mr. Meade-Waldo, writing to me, mentions having flushed as many as seven birds together in the *Euphorbia canariensis.* The Owls are fond of roosting in the high palm-trees before the branches are cut.

Upupa epops. Hoopoe.

Upupa epops Hartert, Nov. Zool. 1901, p. 328 ; Thanner, Orn. Jahrb. xxi. p. 89 (1910) (part.).

Upupa epops fuerteventuræ Polatzek, Orn. Jahrb. 1908, p. 165 ; Thanner, Orn. Jahrb. xxi. p. 89 (1910) (part.).

a. Near Tirajana. 8th April '09.

b, c. ♀. The "Charco," Maspalomas. 24th Feb. '12.

d. ♀. Maspalomas Village. 25th Feb. '12.

e, f. ♂ ♀. Juan Grande. 2nd March '12.

Iris dark brown ; bill black ; feet greyish brown.

Total length in the flesh 11·1–11·3 inches.

Hoopoes are resident in the island, but a considerable addition to their numbers takes place in the summer months. At this time of the year they are much tamer than in the winter, allowing anyone to approach to within a very few yards : they are commonly seen in the beautiful garden of the Santa Catalina Hotel. In the winter they are scarce in the neighbourhood of Las Palmas, but odd pairs occasionally wander down from the interior, and I have several times flushed these birds on the ground near the golf-links. A single pair is generally to be found in many of the inland villages in the north, such as Firgas, Moya, Arucas, &c. South of the Cumbres they become more plentiful, and in these isolated spots shew no signs of fear whatever. They were most numerous in the "Charco" at Maspalomas, where they used to appear in the evenings, sometimes as many as four or five at a time. Herr von Thanner recognises a subspecies, *Upupa epops fuerteventuræ* Polatzek, and records specimens obtained at the "Charco" under that name.

Cypselus murinus brehmorum. Pale Swift.

Cypselus murinus brehmorum Naumann, Naturg. Vög. Mitteleuropas, iv. 1901, p. 233 * ; Hartert, Nov. Zool. 1901, p. 326 ; id. Vög. Pal. Faun. vol. ii. p. 839 (1912).

Apus apus brehmorum Hartert ; Naumann, Naturg. Vög. Mitteleuropas, iv. 1901, p. 233 : Polatzek, Orn. Jahrb. 1908, p. 163.

a, b. ♂ ♀. Barranco below Santa Brigida. 1st April '09.

c. ♀. Between Maspalomas and Juan Grande. 2nd March '12.

Iris brown; bill black; feet black. Wing-measurements 167–172 mm.

C. m. brehmorum is paler and more brownish grey than *C. apus*, the white on the throat extends lower, and the forehead is decidedly paler.

From *C. murinus* it is distinguished by its darker colouring throughout.

This Swift is almost entirely confined to the north of the island; Herr von Thanner never met with it in the south, and I have only done so on one occasion, near Juan Grande, where about ten birds were hawking over the plain. Very few are to be seen in the winter months.

In April (1910) when passing through the town of Aguimes, I was very much struck with the thousands of Swifts which were hawking over the houses—the air was literally full of them, but in about four days' time they had totally disappeared. This is the only occasion on which I have seen this Swift in any numbers. Earlier in the year a few occasionally make their appearance in the neighbourhood of Las Palmas and Santa Brigida. Canon Tristram believed them to be resident, but in this, I think, he was mistaken; by far the greater number observed are summer migrants.

On the 18th of August (1908) I observed a few Swifts in the Monte, and in May and June (1912) I noticed several hawking over the Port Road.

Polatzek found these Swifts in the Barranco Guiniguada. In August and September he mentions that they went regularly every morning along the Barranco past San Matéo towards the heights, and returned about five o'clock in the afternoon.

CYPSELUS UNICOLOR. Madeiran Black Swift.

Cypselus unicolor Tristram, Ibis, 1889, p. 23.

Apus unicolor Hartert, Nov. Zool. 1901, p. 327: Polatzek, Orn. Jahrb. 1908, p. 164.

a, b. ♂ ♀. Near Barranco de Fataga, Maspalomas, 28th Feb. '12.

Iris dark; bill black; feet blackish.

This is the resident species generally found in the south of Gran Canaria, where it frequents the deep barrancos, and roosts in the high overhanging cliffs. A few birds occasionally wander to the "Charco" on the coast, but they are generally confined to the higher level. Curiously enough, I have seldom seen these little Swifts anywhere in the north of the island, but I believe there is a colony in the Barranco de la Virgen near Firgas. Polatzek records them from Tafira.

DENDROCOPUS MAJOR THANNERI. Thanner's Great Spotted Woodpecker.

Picus major Thanner, Orn. Jahrb. xxi. p. 91 (1910).

Dendrocopus major thanneri Le Roi. Orn. Monatsb. 1911, p. 81 *.

Dryobates major thanneri Hartert, Vög. Pal. Faun. vol. ii. p. 906 (1912).

a. ♀. Near Cueva de las Ninas, 750 metres. 22nd Jan. '10.

b. ♂. Pinar Pajonal. 23rd Jan. '10.

c. ♂. Cueva de las Ninas, 760 metres. 24th Jan. '10.

d. ♂. Pinar Pajonal, 830 metres. 23rd Jan. '10.

e. ♂. Pinar behind Cueva de las Ninas, 3400 ft. 10th Feb. '11.

f. ♂. Pinar above Juncal, 4000 ft. 11th Feb. '11.

Iris cherry or bright red; legs and feet slate-coloured to black; bill blackish horn-coloured; nails black.

Total length 9·2–9·7 inches: expanse of wing 16·2 inches: tip of the wing to tip of tail 1·9 inches.

Dendrocopus major thanneri is distinguished from *D. m. canariensis* (typical locality Tenerife) by having (1) the entire under side lighter throughout, (2) the brownish frontal band generally lighter. From typical Swedish examples of *D. major* it is distinguished by the darker brown under side (light coffee-colour), which is intermediate in shade between *D. m. canariensis* and *D. major.*

These beautiful birds are confined to the pine-forests, and in these woods are fairly plentiful. In the various excursions which I have made in the Pinar Pajonal I met with the Great Spotted Woodpecker on every occasion. In flight they are most conspicuous. During the month of February they were always seen in pairs, and were not so shy as other members of the genus which I have come across. Their cry is very loud and betrays their presence at a long distance. Nesting-holes of this species seemed to me to be peculiarly scarce. Herr von Thanner remarks that these holes were always placed higher up the tree-trunks than in the woods of Tenerife. Despite its circumscribed area this bird is extraordinarily well known by the peasants.

HIRUNDO RUSTICA. Swallow.

Large numbers of Swallows arrive in the island in the early summer, and may be seen hawking over the cornfields. They do not remain to breed. Herr von Thanner mentions having seen *H. rustica* near Maspalomas as early as February 5th, after a violent storm.

CHELIDON URBICA. House-Martin.

An irregular migrant. I have only once seen the species in the winter months, *i. e.* two examples flying over the "Charco" in company with a few Swifts on February 25th (1912). Herr von Thanner saw great numbers at Maspalomas on February 5th after a violent storm.

TURDUS MERULA CABRERÆ. Blackbird.

Turdus merula cabreræ Hartert, Nov. Zool. 1901, p. 313 *; Thanner, Orn. Jahrb. xxi. p. 93 (1910).

a. ♂. San Matéo, 2500 ft. 22nd Dec. '08.
b. ♂. Cueva de las Ninas, 760 metres. 24th Jan. '10.
c, d. ♂ ♀. Santa Brigida, 1500 ft. 20th Jan. '11.
e. ♀. Juncal, 3600 ft. 6th Feb. '11.
f, g. ♂ ♀. Above San Matéo, 2800 ft. 11th Feb. '12.

Iris chocolate-brown, pupil blue; bill (♂) orange, (♀) brown; feet brownish horn-coloured.

Total length in the flesh 10·1 inches; expanse of wings 14·8 inches.

This insular race of Blackbird is distinguished from *T. merula* by its longer bill, shorter wing and tail, and by the very dark colouring of the female.

The Blackbird is by no means conspicuous in Gran Canaria, and is confined to the cultivated ground and deep sheltered barrancos. In the Monte two or three individuals can generally be seen close to Santa Brigida, and the woods between this place and San Matéo are perhaps the spots most frequented by them in the island. In the south I have met with them sparingly, generally in the almond-groves or near some village, where their familiar cry has betrayed their presence. They are resident and breed in the island, and, contrary to the custom of the bird found in England, lay very few eggs in a clutch. The song is very seldom heard.

TURDUS MUSICUS. Song-Thrush.

Turdus musicus Meade-Waldo, Ibis, 1889, p. 1.

a, b. ♂ ♂. Santa Brigida. 20th Jan. '11.

c. ♂. Cueva de las Ninas, 2800 ft. 7th Feb. '11.

Iris reddish-brown; bill—upper mandible black, lower mandible yellowish; feet yellow.

Total length in the flesh 8·1 to 8·9 inches; expanse of wings 13·6 inches.

The Song-Thrush is a winter visitor to Gran Canaria; I found it in considerable numbers near the Cueva de las Ninas in February 1911. A few were seen near Santa Brigida in January, but they are by no means plentiful in the Monte districts. I was much struck by the remarkable wildness displayed by these birds; they were very hard to approach, and flew with surprising swiftness. They do not remain to breed.

ERITHACUS RUBECULA SUPERBUS. Tenerife Redbreast.

Erithacus superbus Koenig, J. f. O. 1889, p. 183*.

Erithacus rubecula superbus Thanner, Orn. Jahrb. xxi. p. 92 (1910); Hartert, Vög. Pal. Faun. vol. i. p. 754 (1910).

a–c. ♂ ♂ et ? San Matéo. Between 5th–13th Feb. '11.
d. ♂. Above San Matéo, 2800 ft. 11th Feb. '12.

Iris dark; bill black; feet brown.

Total length in the flesh 5·2–5·4 inches.

This fine dark-breasted Redbreast is very scarce in the island of Gran Canaria. The first three examples mentioned were shot by a Spaniard above San Matéo and sent to me in the flesh. Another was seen by one of my party on the way from San Matéo to the Cumbres just within the vegetation belt. Herr v. Thanner mentions it as "common" at Tejeda and Moya, and says that he saw several above Mogan. Certainly I never saw a Redbreast in the Pinar although I kept a sharp look-out for it.

In January 1912 a "Robin" was actually seen in the garden of a house between the Port and Las Palmas at sea-level; that the species should be seen so low down as this is a remarkable occurrence. During a stay of two days at San Matéo in February 1912 I saw several Redbreasts at very close quarters. The first was singing from a tree high up the hillside, and my attention was attracted to it by the peculiar liquid notes which I certainly did not recognise as ever having heard previously. Another was seen not far away, 300 feet above San Matéo. It was remarkably tame, and flew on to a stone within six yards of our party. Its favourite haunt in the neighbourhood is on the sides of the deep barranco which leads from the village towards the Cumbres. Here, amidst the luxuriant growth of flowering plants, cactus, and other tangled vegetation, the Redbreast spends its days, seldom seen by any but those who know its habits, and doubtless nesting in the many hidden recesses, which afford it seclusion and shelter. I have not myself found its nest, but Mr. Meade-Waldo mentions that it is "not unfrequently found placed in the branches of a tree; the number of eggs laid being two or three, occasionally four." Certainly Herr von Thanner's assertion that he found this bird "very frequent everywhere on the north side of the island" is far from my own experience, as I look upon it as decidedly rare and very locally distributed.

It is a remarkable fact that the Common Redbreast, *Erithacus rubecula*, which is found in the neighbouring islands of Gomera, Palma, and Hierro, is *not* found in Gran Canaria or Tenerife, *Erithacus rubecula superbus* taking its place in these two islands.

Sylvia atricapilla. Blackcap.

Sylvia atricapilla obscura Tchusi, Orn. Monatsb. 1901, p. 129*; Thanner, Orn. Jahrb. xxi. p. 91 (1910); Hartert, Vög. Pal. Faun. i. p. 585 (1910) (geographical form).

a. ♂. Santa Catalina Garden, Las Palmas. Dec. '08.
b. ♂. Las Palmas. 11th Jan. '09.
c. ♀. Santa Brigida. 5th Jan. '09.

S. a. obscura Tschusi was supposed to be slightly more dusky, but see Dr. Hartert's remarks, Vög. Pal. Faun. i. p. 585.

The "Capirote," as this bird is known locally, is, after the Canary, the finest songster in the islands. It is to be found in numbers in every garden, being confined chiefly to the cultivated districts. In Las Palmas it is most confiding, building its nest in numbers in the large grounds of the Catalina Hotel. I examined one nest in another garden built in a shrub within ten yards of the house. On 19th March (1910) I found a nest built in a thick prickly bush; it was composed largely of wool interwoven between grass and lined entirely with hair; the eggs, which were four in number, were slightly incubated.

One male example that I shot had the chin of a dull chestnut-colour, which is said to be the result of the bird feeding on oranges, but this is the only specimen I came across with this peculiar marking.

The Blackcap is resident in the island, but the numbers are largely increased in the spring by migrants. Von Thanner notes that the migratory birds can easily be distinguished by the thick layer of fat which is found on their skin. At the beginning of June (1912) Blackcaps were more numerous in the private gardens of Las Palmas than I had ever seen them previously.

SYLVIA MELANOCEPHALA LEUCOGASTRA. Sardinian Warbler.

Sylvia melanocephala leucogastra Ledru, Voy. Ténérife u.s.w. p. 182 (1810); Thanner, Orn. Jahrb. xxi. p. 92 (1910); Hartert, Vög. Pal. Faun. i. p. 594 (1910).

a, b ♂ ♂. "Charco," Maspalomas. 24th Feb. '12.

c. ♀. "Charco," Maspalomas. 28th Feb. '12.

Iris light brown, eyelids brilliant red; bill black; feet yellowish flesh-coloured.

The male of this subspecies is similar to *S. melanocephala*, but somewhat smaller; the inner webs of the outer tail-feathers are not pure white, but flecked with grey.

The female is distinguished by having the entire upper side greyer, especially on the crown, and in having a similar tail to the male.

I have examined a series of this Warbler from the Canary Islands, and the differences noted above are, as I am aware, very small indeed. However, one would naturally suppose an insular form of this little bird in the Canary Islands to vary from the true Sardinian Warbler, and although these differences are very slight, especially in the case of the male, yet they are constant in the series at my disposal, and on these grounds I propose to uphold this new subspecies.

I did not meet with the Black-headed Warbler until my last expedition in the island, which took me to the extreme southerly point of Gran Canaria. Here, in the "Charco," I found several pairs of this little bird, apparently isolated in the small oasis. They were extremely difficult to shoot as they hopped about in the tamarisk bushes or darted in and out amongst the high clumps of long grass. Eventually I managed to secure three specimens. I should say there must have been about ten birds inhabiting this spot.

Although I made a long excursion inland, I did not again meet with this Warbler. Herr von Thanner remarks that "they are found everywhere on the south coast," yet I should say that if this is the case they are decidedly scarce. I saw none in the Barranco de Mogan. Mr. Ogilvie-Grant saw two examples of the Sardinian Warbler in Madeira, where its curious flight attracted his attention.

Mr. Meade-Waldo, who spent several winters in the Canary Islands, tells me that this Warbler is extremely common in Tenerife as well as in several of the other islands in the group which he has visited. It is strange that the bird was so scarce in Gran Canaria.

SYLVIA CONSPICILLATA BELLA. Spectacled Warbler.

Sylvia conspicillata bella Tschusi, Orn. Monatsb. 1901, p. 130 *; Thanner, Orn. Jahrb. xxi. p. 91 (1910); Hartert, Vög. Pal. Faun. i. p. 599 (1910).

a. ? Las Palmas. 30th Dec. '08.
b. Las Palmas. 7th Jan. '09.
c. Las Palmas. 2nd April '09.
d. Confital Bay (sea-level). 4th Feb. '12.
e, f. Barranco de San Lorenzo. 16th Feb. '12.

Iris light brown; bill horn-coloured; feet yellowish flesh-coloured.

"Upper side very similar to *S. conspicillata*, but darker grey head, browner back, and more chestnut primary-coverts."

Examples from Gran Canaria are obviously darker than *Sylvia conspicillata*, of which I have examined a small series from the type locality, Sardinia.

On comparing an adult bird from Madeira (the type locality of *Sylvia c. bella*) killed in February with one of my birds from Gran Canaria obtained in the same month, I find that the Madeiran bird is slightly darker even than Gran Canaria specimens. It would be interesting to compare a large series from these two islands.

Spectacled Warblers are found in the island throughout the year. They seem to prefer the low-lying barren ground and hottest valleys to the more cultivated districts. They may always be seen on the waste land behind the Catalina, frequenting the Euphorbias and other small bushes which cover the sides of the barrancos. They are shy little birds, and when once alarmed fly some distance to a thick shrub from which they are particularly hard to dislodge; their cry is unmistakably that of a Warbler, and when frightened they begin a peculiar chattering and scolding. I did not see any in the neighbourhood of the Pinar.

PHYLLOSCOPUS RUFUS CANARIENSIS. Canarian Chiffchaff.

Phyllopneuste rufa canariensis Hartwig, J. f. O. 1886, p. 486*.

Phylloscopus fortunatus Tristram, Ibis, 1889, p. 21.

Phylloscopus rufus canariensis Hartert, Nov. Zool. 1901, p. 32.

Phylloscopus collybita canariensis Thanner, Orn. Jahrb. xxi. p. 91 (1910) ; Hartert, Vög. Pal. Faun. i. p. 504 (1910).

a. ♀. Santa Brigida. 4th Jan. '09. Wing 55 mm.

b. ♂. Las Palmas. 6th Feb. '12. Wing 48 mm.

c. ? Las Palmas. 12th Feb. '12.

d. ♂. Las Palmas (Alcaravaneras). 16th Feb. '12. Wing 52 mm.

e. The "Charco," Maspalomas. 24th Feb. '12. Wing 53 mm.

Bill—upper mandible dark horn-brown, lower lighter ; iris and feet dark brown.

The Chiffchaff of the Canary Islands is distinguished from *P. rufus* by its smaller size, darker colouring throughout, and the very different wing-formula, the wing being shorter and more rounded than in the European species. The 2nd primary is extremely short, shorter than even the 8th. The 4th and 5th primaries are the longest, the 3rd and 6th are approximately equal in length. Wing-measurements are given opposite the individual examples obtained.

This is perhaps the commonest bird in the Canaries. Found throughout the island, it is extremely tame, nesting freely in the gardens and woods. Herr von Thanner (Orn. Jahrb. xxi. p. 95) mentions that "there are no Chiffchaffs in the Pinar." In this he is mistaken, as I have myself shot specimens above the Cueva de las Ninas and have often both heard and seen them in every part of the Pine Forest which I have traversed. The Chiffchaff breeds very early in Gran Canaria. A pair were nesting under the eaves of a cottage near Santa Brigida, and the little birds made free use of large pieces of cotton-wool which were placed for them.

In 1910 one pair built in a small fir-tree in a private garden ; this nest was almost completed on February 2nd and had four eggs on the 14th of that month. Another nest in the same garden contained only one egg on February 19th, but by the 27th of the month four eggs were laid.

On March 14th of the same year I found a Chiffchaff's nest built on the ground: it was placed at the foot of a small bush in an exposed position: the nest was composed of grass and lined thickly with feathers and harmonised perfectly with the dead grass around. It contained four eggs. Dr. Tristram never heard of a nest placed on or near the ground, those which he found were almost always in the crowns of palm-trees and once in a laurel-tree. The colouring of the eggs of this species varies considerably, the red spots differing in size to a great extent. In one clutch which I took the spots were very minute and numerous, predominating at the larger end, and in another clutch were much larger and more scanty.

Von Thanner mentions having procured Chiffchaffs here which had "light plumage and pale yellow tail-feathers." At the time of my visit to this spot in February 1912, Chiffchaffs were remarkably scarce. The only specimen that I procured here certainly did not shew any marked differences from those obtained in the north of the island. At the beginning of June of this year Chiffchaffs appeared more plentiful in the private gardens of Las Palmas than I had ever noticed them.

LANIUS EXCUBITOR KOENIGI. Koenig's Grey Shrike.

Lanius excubitor koenigi Hartert, Nov. Zool. p. 309 & p. 323* (1901); Thanner, Orn. Jahrb. xxi. p. 91 (1910).

a, *b*. ♂ ♂. Between Aguimes and Tirajana. 8th April, '09.

c, *d*. ♀. Cueva de las Ninas. 760 metres. 24th Jan. '10.

e. ♂ (?). Cueva de las Ninas. 3200 ft. 9th Feb. '11.

Bill black; iris reddish brown, pupil blue; feet black.

Total length in the flesh 9·4 inches; expanse of wings 12·6 inches.

This Shrike is most nearly allied to *Lanius excubitor algeriensis* from Algeria and *Lanius excubitor dodsoni* from Morocco.

Examples from Gran Canaria of *Lanius e. koenigi* have

(1) the upper parts similar to *L. e. dodsoni*, but darker than *L. e. algeriensis*;
(2) the under parts similar to *L. e. algeriensis*, but lighter than *L. e. dodsoni*.

A resident species, the Grey Shrike is the most locally distributed of any bird found in the island. It is entirely absent from the north of Gran Canaria. As I travelled south, Shrikes were first met with after the town of Aguimes had been passed, and along the main road to Tirajana they were by no means rare. In these southern villages they largely frequent the almond-groves, perching on the topmost branch, from which they give forth their musical whistle. They are not found on the Cumbres, but after descending on the southern side they become quite plentiful; near the Cueva de las Ninas (on the edge of the Pinar) they were found up to 2280 ft. I expected to meet with this Shrike on the desert-like country between Carrisal and Maspalomas, but only saw a single example in a Euphorbia-bush near Juan Grande. Another pair, however, frequented the sandy ground in the neighbourhood of the "Charco" at Maspalomas. Further round the coast in the Barranco de Mogan I came across several pairs. On the 8th April (1909) I discovered a nest, containing five fully fledged young, placed in the centre of a low bush on very stony ground. This nest was situated within a few yards of the main road between Aguimes and Terajana. Three of the young birds I brought away, hoping to keep them alive, but in this, I am sorry to say, I failed.

Mr. Meade-Waldo found the number of eggs laid to vary from four to six in a clutch.

Sandy-coloured examples of this Shrike are occasionally met with.

PARUS CÆRULEUS TENERIFÆ. Tenerife Blue Tit.

Parus cæruleus teneriffæ Hartert, Vög. Pal. Faun. p. 350 (1910); Thanner, Orn Jahrb. xxi. p. 91 (1910).

a, b. ♂ ♀. Santa Brigida. 4th Jan. '09.

c. ? San Matéo. Feb. '11.

d–g. ? Above San Matéo (2800 ft.). 10th and 11th Feb. '12.

Iris reddish brown; bill black; feet dark brown.

This pretty little Tit is found throughout the island, and is especially common in the Monte and just above San Matéo. It is plentiful in the south of the island, and frequents the Pinar, where I have seen it up to 4000 ft. in some numbers. It is a noisy little bird, and its note is often the only sound heard in the depth of the silent forest, as it moves in small parties from tree to tree. Occasionally it is found near Las Palmas, frequenting the thick vegetation in the gardens of the Santa Catalina Hotel.

The eggs laid are generally three to five in number.

MOTACILLA BOARULA CANARIENSIS. Canarian Grey Wagtail.

Motacilla boarula canariensis Hartert, Nov. Zool. 1901, p. 313 *; Thanner, Orn. Jahrb. xxi. p. 93 (1910).

Motacilla boarula boarula Hartert, Vög. Pal. Faun. p. 298 (1910).

a. Above San Matéo, 4000 ft. 22nd Dec. '08.

b. Between San Matéo and Teror. 23rd Dec. '08.

c, d. ♂ ♀. Las Palmas. 20th Feb. '11.

Iris dark brown; bill black; feet dark brown. Total length in the flesh 7 inches; expanse of wings 9½ inches.

As I have not a series of adult birds in my own collection for comparison, I quote the following remarks of Dr. Hartert on this subspecies, *vide* Nov. Zool. 1901, p. 313:—"*Motacilla b. canariensis* stands between *M. b. boarula* and *M. b. schmitzi.* It is not so dark on the upper surface as the latter, the parts round the ear are not so black, but they are much darker than in typical European birds, the superciliary stripe and the stripe on the cheek are smaller. . . . . Mr. Meade-Waldo has already pointed out the superior size of the Wagtails of the Canaries, but, unfortunately, he did not name them."

The Grey Wagtail is one of the most confiding birds imaginable. It is found plentifully throughout the entire island, a pair or more frequenting every esacia and pool of water. It appears equally at home in some hidden gorge in the mountains or walking fearlessly amongst the washerwomen on the edge of the water-tanks. Its nest is often placed in the hole of a wall or house, and from three to six eggs are laid, usually of a brownish stone-colour. Mr. Meade-Waldo mentions that occasionally a clutch of brick-red eggs is laid, and not unfrequently one of pure white eggs.

MOTACILLA ALBA. White Wagtail.

a. ♀. Las Palmas. 13th Jan. '10.

The White Wagtail is a rare migrant in Gran Canaria. In the many months which I have spent in the island I have only met with it on five occasions :—

(1) A single bird seen on the field opposite the Metropole Hotel early in January (1910).

(2) A pair on the water-tanks past the golf-links (13th Jan. 1910).

(3) One bird seen on the Las Palmas cricket-ground (28th Feb. 1911).

(4) A fine adult bird on a wall near the Port Road (middle of February 1912).

(5) A pair reported as seen frequenting a timber-yard in Las Palmas Harbour (February 1912).

From this it will be seen that stragglers are found in the island in January and February.

ANTHUS BERTHELOTI. Berthelot's Pipit.

Anthus berthelotii Bolle, J. f. O. 1862, p. 357 *; Ibis, 1863, p. 343.

Anthus berthelotii berthelotii Thanner, Orn. Jahrb. xxi. p. 93 (1910).

a. Above San Matéo, 2500 ft. 22nd Dec. '08.

b, *c*. Cumbres, above San Matéo, 5300 ft. 22nd Dec. '08.

d. ♀. Las Palmas, sea-level. 7th Jan. '11.
e. ♀. Las Palmas. 21st Feb. '11.
f. ♂. Santa Brigida, 1580 ft. 23rd Feb. '11.

Iris brown; bill horn- or yellowish horn-coloured; legs light flesh-coloured. Total length in the flesh 5·6 inches.

Berthelot's Pipit is found from north to south of Gran Canaria, and is one of the tamest possible birds imaginable, hopping in front of people without the slightest fear. On the highest points of the Cumbres it is quite common, and I have procured specimens at 5300 ft., almost the highest ground in the island. It is generally seen singly or in pairs, and is particularly numerous on the Palmas golf-links, where the nests may be found in numbers. These little birds are remarkable for the antics with which they try to draw one from their nests if suddenly disturbed. While walking over the links on March 11th (1911) my attention was attracted by a Berthelot's Pipit, which suddenly appeared before me fluttering along the ground as if quite unable to fly, with an apparently broken wing. The little creature fluttered in and out of the Euphorbia for about fifteen yards, when it took to flight. I guessed it must have a nest close by, and the ruse to lead me away was marvellously enacted. I had not far to search, and found an extremely neat and cup-shaped nest placed in a slight depression on the ground at the very foot of an Euphorbia-bush; the nest was firmly wedged in amongst the branches of the Euphorbia and was composed on the outside of small dried twigs, then a thick layer of dried grass woven very tightly, and lined entirely with goats' hair.

The nest contained three eggs, having the ground-colour greenish brown, with a ring of darker brown round the larger end. The eggs were incubated about seven days. This was on March 11th. Later in the month, on March 18th, I found two more nests placed in a hollow in the ground under the shelter of an upright stone; each contained two young in down.

The nestling is covered with dark grey down, the gape being brilliant light yellow in colour.

So far as I am aware no migration of this species takes place. A long description of the habits &c. of this interesting little Pipit will be found in 'The Ibis' for 1863, by Dr. Carl Bolle. Only on one occasion have I seen this bird perched on a tree: it being such an unusual occurrence, I promptly shot it to make sure of the identification.

CALANDRELLA MINOR POLATZEKI. Polatzek's Short-toed Lark.

Calandrella pispoletta rufescens Hartert, Nov. Zool. 1901, p. 325.

Calandrella minor distincta Sassi, Orn. Jahrb. 1908, p. 30; Thanner, Orn. Jahrb. xxi. p. 93 (1910).

Calandrella minor polatzeki Hartert, Vög. Pal. Faun. i. p. 217 (1910)*.

a. ♂. Between Las Palmas and Tirajana. April '09.

b–d. ♂. Las Palmas. 17th March '11.

e. Juv. Near Las Palmas. 18th March '11.

f. ♀. Telde Plains. 22nd Feb. '12.

g–h. ♀ et ? ♂. Plain between the "Charco" and Maspalomas. 25th Feb. '12.

Iris brown; bill horn-coloured; feet yellowish flesh-coloured.

Total length 5·2 inches; expanse of wings 10·4 inches.

The supposed form from Gran Canaria which Dr. Sassi has described under the name of *C. m. distincta* cannot possibly hold good. I have examined a large series at the Tring Museum from the Canary Islands, and find that the characters given are not constant.

As might be supposed, the Short-toed Lark of Gran Canaria is similar to the form found in Fuerteventura and Lanzarote, and differs very strikingly from the Tenerife subspecies *C. m. rufescens*.

Polatzek's Short-toed Lark is locally distributed over the island. On the 16th and 17th of March (1911), a number of these birds appeared on the island, and large flocks were found on the golf-links, where two or three birds only are usually to be seen. They were scattered about in small parties in company with Trumpeter Bullfinches, and did not seem to be paired. Hitherto I had only met with this Lark sparingly in the northern part of the island. The following day (March 18th), I met some boys who had just taken a young bird of this species from the nest. I tried to rear it, but in this I failed, and added it to my collection of skins (specimen *e*).

These Larks are far more plentiful on the extensive plains between Telde and Arguineguin than they are in the neighbourhood of Las Palmas.

EMBERIZA CALANDRA. Corn-Bunting.

Emberiza calandra thanneri Tschusi, Orn. Jahrb. 1903, p. 162*; Thanner, Orn. Jahrb. xxi. p. 93 (1910).

a. ? Above San Matéo (4000 ft.). 22nd Dec. '08. Wing 102 mm.

b. ? Las Palmas (sea-level). 7th Jan. '09. Wing 97 mm.

c. ♀. Las Palmas (sea-level). 7th Jan. '11. Wing 86 mm.

d. ? Las Palmas (50 to 100 ft.). Jan. '11. Wing 89 mm.

e. ♂. Cumbres (Camp IV.) (5650 ft.). 12th Feb. '11. Wing 94 mm.

f. ♂. Cumbres (Camp IV.) (5650 ft.). 13th Feb. '11. Wing 98 mm.

g. ♀. Las Palmas (50 to 100 ft.). 31st Jan. '12. Wing 85 mm.

†*h.* ♂. Between Las Palmas and Tamaraceite (100 ft.). 7th Feb. '12. Wing 87 mm.

i. ?. Between Las Palmas and Tamaraceite (100 ft.). 7th Feb. '12. Wing 89 mm.

†*k.* ♂. Between Las Palmas and Tamaraceite (100 ft.). 7th Feb. '12. Wing 90 mm.

†*l.* ♂. Between Las Palmas and Tamaraceite (100 ft.). 7th Feb. '12. Wing 87 mm.

m. ? Above San Matéo (2800 ft.). 10th Feb. '12. Wing 94 mm.

n. ♂. Above San Matéo (2800 ft.). 10th Feb. '12. Wing 96 mm.

o. ? Above San Matéo (2700 ft.). 11th Feb. '12. Wing 87 mm.

p. ♂. Above San Matéo (2600 ft.). 11th Feb. '12. Wing 95 mm.

q. ? Above San Matéo (2600 ft.). 16th Feb. '12. Wing 93 mm.

r. ? Plateau above Las Palmas (100 ft.). 15th Feb. '12. Wing 86 mm.

s. ? Plateau above Las Palmas (100 ft.). 15th Feb. '12. Wing 87 mm.

t. ♀. Maspalomas Village. 25th Feb. '12. Wing 87 mm.

†*u.* ♀. Maspalomas Village. 25th Feb. '12. Wing 86 mm.

Iris dark; bill—upper mandible horn-coloured, lower mandible yellowish; feet yellow.

The remarkable difference in size between examples of the Corn-Buntings which I obtained in Gran Canaria led me to suppose that there might be two distinct forms inhabiting the island, a resident *E. c. thanneri* and a migratory race. I therefore collected a fair series from different parts of the island, and my supposition was strengthened by finding that all examples (with one exception) shot on the high ground had a wing-measurement of 93–102 mm., whereas those from the coast-line were considerably smaller, with a wing-measurement of 85–90 mm. The latter, without exception, all appeared to have much lighter under parts than those from the hills.

The Hon. Walter Rothschild and Dr. Hartert very kindly invited me to the Tring Museum, where the ample series placed at my disposal soon convinced me that my Gran Canaria birds all belonged to the same race. Dr. Hartert has made a further examination of the series, and for this I am deeply indebted to him. He is of opinion that the size depends on sex, and believes that four specimens in my collection labelled males are in reality females. If this is the case, it will be seen that the wing-measurement of males varies from 93 to 102 mm., and of females from 85 to 90 mm. Again, the birds obtained on the high ground had more yellowish under parts and the spotting on the breast was considerably coarser.

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† Dr. Hartert is of opinion that the sex in specimens *h*, *k*, *l*, and *u* has been wrongly determined. Certainly the measurements of these examples point to their being females, but as I did not dissect them myself I cannot disprove this.

That Corn-Buntings inhabiting the same island or country vary considerably in both colour and size is borne out by the large series in the Tring Museum.

Dr. Hartert has kindly sent me two birds from Sardinia which are so widely different in the markings of the breast, as also in the size of the wing, as to appear at first sight perfectly distinct species; others from Morocco and Algeria shew the same differences only to a lesser degree.

In the Orn. Jahrb. (1903) Dr. Tschusi separated the Canary Island form under the name *E. c. thanneri* on the ground that the markings were coarser and darker than in *E. calandra*. Dr. Lorenz has been good enough to send me the types of this subspecies from Vienna, which I have carefully compared with the large series at my disposal. I do not consider this form sufficiently distinct to be worthy of subspecific rank. As I have shown above, individuals from the same islands vary to such a large extent amongst themselves that it seems impossible to find any constant characters. The description which Dr. Tschusi gives applies to examples in my collection from San Matéo and elsewhere in the hills, but to none of the specimens obtained on the coast; moreover, it is equally applicable to many examples of *Emberiza* from Europe. Dr. Sassi is, I believe, of the same opinion as myself.

Corn-Buntings are found very plentifully in certain parts of Gran Canaria, especially in the neighbourhood of San Matéo. In February (1912) literally hundreds of these Buntings were to be found in the corn-fields above the village, and their rasping call resounded from every tree.

Early in February numerous small flocks used to frequent the ground between Las Palmas and the Port, and many were shot on the hillside behind the Santa Catalina Hotel. They are much more rare in the south of the island, but are sparsely distributed even to the most southerly points, where I have seen examples in the Barranco de Mogan and in the grain-fields of Maspalomas. Occasionally these birds wander to the Cumbres, and while encamped there at 5650 ft. I came across a large flock.

This is a resident species in the hills, but I believe that its numbers are augmented in February, although I have not actually observed migration taking place. Certainly at some seasons of the year it appears to be much more plentiful than at others.

FRINGILLA TEYDEA POLATZEKI. (Plate XII.)

Fringilla teydea polatzeki Hartert, Orn. Monatsb. 1905, p. 164; Polatzek, Orn. Jahrb. 1909, p. 4; Thanner, Orn. Jahrb. xxi. p. 93 (1910); Bannerman, Ibis, April 1911, pp. 401–2.

a. ♂. Pinar between Cueva de las Ninas and Juncal, 900 metres. 24th Jan. '10.

b. ♀. Outskirts of Pinar, Cueva de las Ninas, 760 metres. 24th Jan. '10.

c–e. ♂ ♀ ♀. Above Juncal, 4000 ft. 6th Feb. '11.

f. ♂. Pinar above Cueva de las Ninas, 3200 ft. 10th Feb. '11.

g. ♂. Pinar above Cueva de las Ninas, 3700 ft. 10th Feb. '11.

h. ♀. Pinar above Juncal, 4000 ft. 11th Feb. '11.

Iris reddish brown; bill bluish horn-coloured; feet grey-brown with pinkish tinge or slate-coloured (specimen *a*).

Total length in flesh 7·2 inches; tip of wings to tip of tail 1·6 inches; expanse of wings 10·5 inches.

The two females shot on the 6th of February had the eggs in the ovary quite undeveloped.

Fringilla teydea polatzeki from Gran Canaria is distinguished from the resident species of Tenerife, *Fringilla teydea,* by the following marked characteristics:—

(1) The tips of the median and greater coverts are much *whiter* than in *F. teydea*, in which bird they are bluish grey. As Herr Polatzek rightly asserts, this characteristic is especially apparent in freshly killed specimens. After death this snow-white becomes more dull with a bluish tinge.

(2) The upper parts are the merest shade more ashy olive-grey than in *F. teydea.*

(3) The black band on the forehead is distinctly more pronounced in *F. t. polatzeki* than in *F. teydea*, which has hardly any indication of a frontal band at all.

(4) The bill is shorter, as can be seen from the following table:—

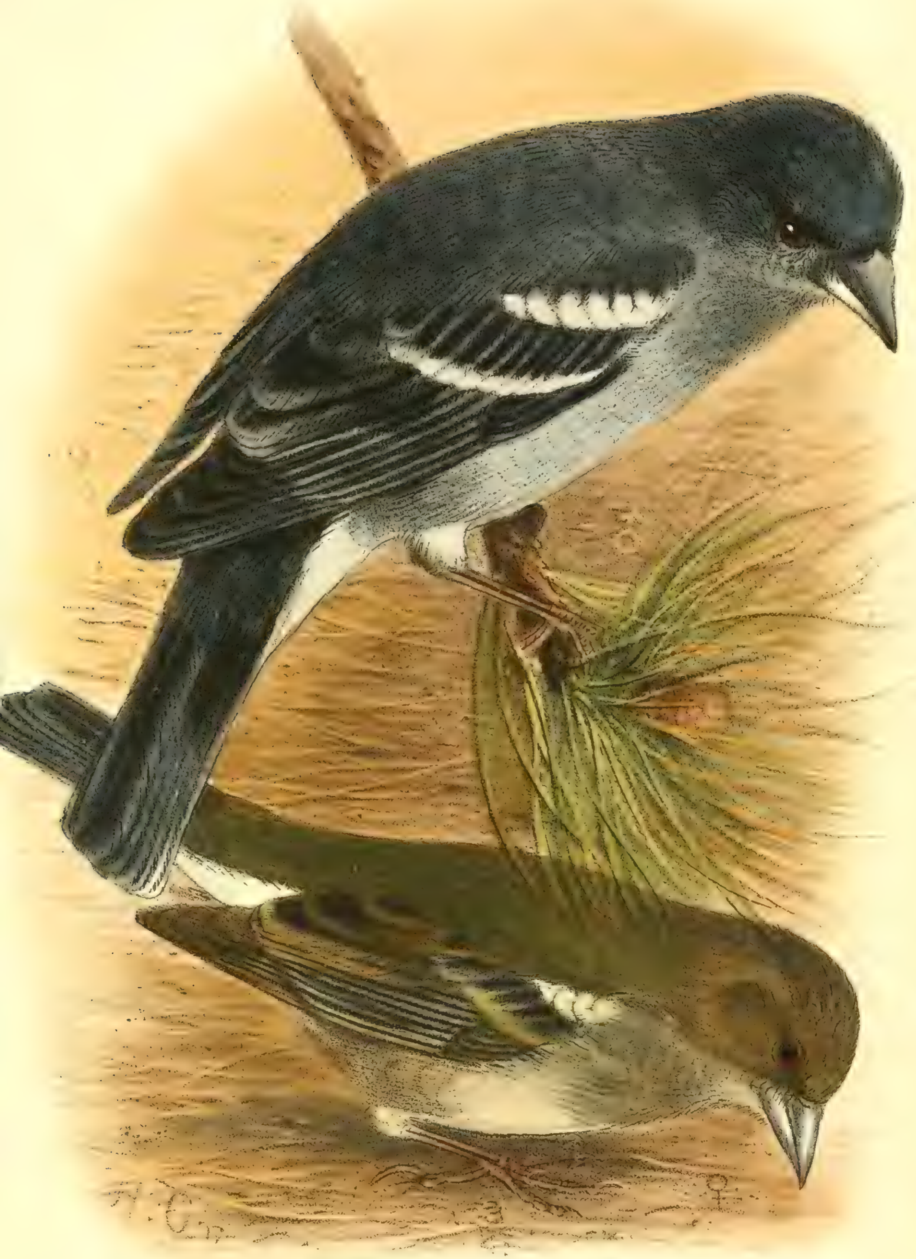
Fringilla teydea polatzeki.		*Fringilla teydea.*	
3 (♂)........	1·6 mm.	1 (♂)........	1·7 mm.
		1 (♂)........	1·8 mm.
1 (♀)........	1·6 mm	3 (♀)........	1·75 mm.
2 (♀)........	1·5 mm.	1 (♀)........	1·7 mm.

(5) A considerable difference will be found in the measurements of the wings in the two forms.

The following measurements are given on the authority of Herr Von Thanner, who appears to have had an enormous series available from which to made his deductions (i. e., *F. teydea polatzeki* 76 skins, *F. teydea* 122 skins):—

	Fringilla teydea polatzeki.	*Fringilla teydea.*
Largest wing ♂	97 mm.	107 mm.
Smallest wing ♂	90 mm.	96 mm.
Average wing ♂	94 mm.	101·2 mm.
Largest wing ♀	97 mm.	97 mm
Smallest wing ♀	85 mm.	80 mm.
Average wing ♀	87 mm.	91·7 mm.

The wing-measurements of three males and three females of *F. t. polatzeki* which I procured are ♂ 92, 93, 94 mm., ♀ 86, 88, 92 mm.



H. Grönvold del. West, Newman imp.

FRINGILLA TEYDEA POLATZEKI ♂ ♀

It was not until 1905, when Herr Polatzek by chance procured examples in the Pinar of Gran Canaria, that a Blue Chaffinch was known to inhabit this island. Until then the fact seems to have escaped the notice of all other naturalists who have travelled in Gran Canaria. The specimens which Herr Polatzek obtained were sent to Dr. Hartert at Tring Museum, who pronounced the bird to be a new subspecies of the well-known Blue Chaffinch (*Fringilla teydea*) of the neighbouring island of Tenerife. As I intended visiting the island in 1908. Mr. Ogilvie-Grant asked me to try and procure specimens for the British Museum. On my arrival in the island in December, with this end in view, I made an expedition over the Cumbres to the Pinar above San Bartolomé, only to find the woods in that direction entirely devoid of bird-life. The following year I again spent some time searching in another direction, making Tirajana my headquarters, but again without result. In January (1910) I entered the Pinar Pajonal from the south, pitching my camp at the Cueva de las Ninas, and here at last I met with the object of my search, procuring both a male and female example. Having now discovered the region in which the Chaffinches were to be found, the next year I again crossed the Cumbres, entering the Pinar by way of Juncal, a tiny village on the outskirts of the forest. No sooner had I gained the pines than the presence of several Blue Chaffinches became evident to me, and in the course of my ride to my old camping-ground I procured two pairs and saw about a dozen more birds besides. This was in February, and afterwards I spent many more days encamped in the forest. Although I only obtained one other pair of this Finch, yet I had ample opportunity of gauging their numbers and noting their habits. Several more birds were seen, but I contented myself with the three pairs already obtained. If a certain other collector had done likewise instead of slaying seventy-six examples the previous year, this very beautiful and interesting bird would not now be in danger of extermination, which will undoubtedly take place if such wholesale destruction is allowed to pass uncondemned. However, in this case, as well as in that of the unique Bullfinch (*Pyrrhula murina*) of the Azores, the warning has, I fear, come too late, and, as the same collector is responsible for the butchery of both species, I sincerely hope that some means may be found to put a stop to such indiscriminate ravages in the future.

The Pinar Pajonal (Plate X. fig. 2), to which these Chaffinches are exclusively confined, covers a considerable area, as can be seen from the map (Plate IX.). Their distribution even in this limited space appears decidedly local, and they are certainly more plentiful in the Pinar above Juncal than near the Cueva de las Ninas. That they move about in the forest seems evident: on one day ten or more birds may be seen in a certain part of the pine-wood, whereas for a week none will be seen at all, when they will suddenly reappear in the same spot. Occasionally single birds—generally males—are to be met with in some remote part of the forest, and no amount of searching would produce another. Herr von Thanner mentions that he found these Chaffinches most plentiful wherever there was sufficient moisture and where the undergrowth was densest; he noticed that they were particularly fond of the seeds of *Stellaria media*. Unlike its neighbour in Tenerife, the bird found in Gran Canaria is remarkably quiet: one would sit for a considerable time on a bough without uttering a sound, presently it would fly as silently to the ground and commence searching diligently amongst the fallen pine-needles. The call-note, when uttered, was very low, much weaker than that of the Tenerife bird. Herr von Thanner actually mistook its cry for that of the Chiffchaff! Very little appears to be known as to the nesting-habits; it probably begins to build in May, and lays its eggs late in that month. Von Thanner thought that it probably commenced laying earlier than the species in Tenerife, owing to the lower altitude at which it is found, but I doubt if this be the case. The Blue Chaffinch was known to the few forest guardias and goatherds in the Pinar, but outside this radius no one seems to have ever heard of it. The Woodpecker, on the other hand, although it inhabits the same area, is known all over the island.

The differentiation which has taken place between the two forms *F. teydea* and *F. t. polatzeki* is very curious, more especially as both birds are living under practically the same conditions and on two islands separated by only thirty-one miles of sea. I sincerely hope that this interesting subspecies may henceforth be allowed to increase in peace, as it undoubtedly will if unmolested by man, and it is aided by the additional fact that Sparrow-Hawks are practically unknown in the pine-forests of Gran Canaria.

FRINGILLA CANARIENSIS. Gran Canarian Chaffinch.

Fringilla canariensis canariensis Hartert, Nov. Zool. 1901, p. 324.

Fringilla cœlebs canariensis Thanner, Orn. Jahrb. xxi. p. 93 (1910); Hartert, Vög. Pal. Faun. i. p. 128 (1910).

a, b. ♂ ♀. Santa Brigida. 4th Jan. '09.
c, d. ♂. Santa Brigida. 8th Feb. '10.
e. ♂. Hoya Bravo. 22nd Feb. '11.
f. ♂. Santa Brigida. 22nd Feb. '11.
g–i. ♂ ♂ ♀. Above San Matéo, 2800 ft. 10th Feb. '12.
k. ♂. Above San Matéo, 2800 ft. 11th Feb. '12.

Iris dark; bill bluish horn-coloured; feet brown or greyish black.

Total length 5·9 inches.

This Chaffinch is not nearly so numerous as its near ally in Madeira. In fact, unless anyone knows exactly where to go, he may pass weeks in Gran Canaria without meeting with a single example.

It is certainly more plentiful in the north of the island than in the south, being practically confined to the Monte and Vega Districts. Its favourite haunts are the secluded woods to be found at Teror, Hoya Bravo, and certain parts of the Monte between Santa Brigida and San Matéo, and especially in the laurel woods above the latter village, which lies at 2500 ft. Von Thanner found it most plentiful at Moya, to the west of Teror.

In the south of Gran Canaria, as I have said, this Finch is particularly scarce, and I have never seen or heard a single example in the large tracts of pine-forests through which I have travelled. It is by no means shy, and can be watched as closely as our own form at home. The note of the male is very similar to that of *F. cœlebs*. The Chaffinch is resident in the island and breeds in suitable places.

In the neighbouring island of Tenerife it commences laying about 23rd of May. Mr. Meade-Waldo says that "Three eggs are the usual clutch, though four are often laid, and also very frequently only two!"

In examples from Gran Canaria the wing-measurements in males appear to be decidedly smaller than in birds from the other islands. Moreover, the black frontal band is less distinct.

The changes of plumage to which this Chaffinch is subject render it very difficult to make out a satisfactory key to the species found in the Canary group. Two examples in my collection, killed in February, have the mantle and back olive-brown, the feathers of the crown being also tipped with this colour.

Key to the Species of Fringilla *inhabiting the North Atlantic Islands.*

I. Upper parts uniform dark slate-grey .... *F. palmæ.*
II. Upper parts parti-coloured.
  a. Crown of head light slate-grey, black frontal band very distinct.
    *a*¹. Upper mantle olive-green, middle of back brownish grey .... *F. maderensis.*
    *b*¹. Entire mantle and back washed with olive-green .... *F. moreleti.*
  b. Crown of head glossy blue-black, frontal band indistinct .. .. *F. canariensis.*

The scattered distribution of the various species of *Fringilla* in the North Atlantic islands has been commented on by almost every writer on this group.

Fringilla canariensis is confined to the islands of Gran Canaria, Tenerife, and Gomera.

Fringilla palmæ to the islands of Hierro and Palma.

Fringilla maderensis to Madeira.

Fringilla moreleti to the Azores.

PASSER HISPANIOLENSIS. Spanish Sparrow.

Passer hispaniolensis hispaniolensis Thanner, Orn. Jahrb. xxi. p. 97 (1910).

a, b. ♂ ♂. Between San Matéo and Teror. 23rd Dec. '08.

c–e. ♂ ♂ ♀. Las Palmas. 11th Feb. '10.

f. ♀. Las Palmas. 20th Feb. '11.

g. ♀. Las Palmas. 21st Feb. '11.

h, i. ♂ ♀. San Matéo (2500 ft.). 10th Feb. '12.

k. ♂. Maspalomas Village. 25th Feb. '12.

Female. Iris light brown; bill yellowish horn-coloured; feet light brown.

Total length in the flesh 5·2 to ·6 inches; expanse of wings 9·3 inches.

This Sparrow seems to be increasing in numbers every year; it is found in town and country, and huge flocks may be seen on the cultivated land. In the early mornings the noise which these Sparrows make in the palms and Eucalyptus-trees is enough to wake the soundest sleeper. In habits they are even more aggressive than *P. domesticus*, and have completely "ousted" the weaker Sulphur-throated Rock-Sparrow from the neighbourhood of Las Palmas—at any rate, so far as nesting is concerned. They have absolutely no fear, and will build even inside the house if a suitable grating is available for their needs. They are very partial to the date-palm, and the fruit is in consequence never allowed to ripen. In this tree they build their nests in profusion, although they also choose the eaves of houses and verandas. Building operations commence in March, and the nest is a most untidy structure, as can be imagined. One which I examined on the 15th of March (1911), built inside a ventilation-grating in a much-frequented room, was composed of thin twigs and grass loosely woven together, It was lined with grass and no feathers were used, although many pigeons and poultry are kept close by. The nest was a domed structure and, as I have mentioned, was very large. On this date (15th March) it contained only two eggs, the ground-colour bluish green, closely spotted with dark brown, the spots becoming united at the thick end into irregular blotches.

The plumage of the male entirely changes in January before the breeding-season commences, and when this change is completed he is one of the most handsome birds to be seen. The head becomes rich chocolate-colour and the black centres to the feathers on the back and mantle become very intense. The under parts undergo the most complete change, the throat becoming dead black and reaching on to the breast, the feathers of which are tipped with white. The cheeks and a large ear-patch change from a dirty buff colour to pure white, the breast likewise becomes white, and the feathers of the sides and flanks deep black edged with buff, giving the bird a most conspicuous appearance. By the 10th of February, and in some cases earlier, this change of plumage has completely taken place. The females, apart from becoming generally brighter in colour throughout, shew no very marked difference.

PETRONIA PETRONIA MADEIRENSIS. Yellow-throated Rock-Sparrow.

Petronia petronia madeirensis Erlanger, J. f. O. 1899, p. 482 *; Hartert, Vög. Pal. Faun. i. p. 141 (1910).

Petronia petronia maderensis Thanner, Orn. Jahrb. xxi. p. 97 (1910).

a. ♂. Aguimes Road. 8th April '09.

b, *c*. ♀ ♀. Santa Brigida. 22nd Feb. '11.

Iris light brown; bill horn-coloured, lower mandible yellow; feet brown. Total length in the flesh 5·9 inches.

I have compared a series of this Rock-Sparrow obtained in the Canary Islands with typical examples of *Petronia petronia*. I find that examples from the Canary Islands have the under parts more grey-brown and the upper parts darker throughout. There appeared to be no difference whatever in the size of the wings.

The Rock-Sparrow is very locally distributed in Gran Canaria; it frequents the dry rocky ground overgrown with Euphorbia and Cactus. Large flocks are always to be found in the Barranco Séco between Las Palmas and Tafira, and many are usually seen there, dusting themselves on the main road. In the town of Las Palmas it has been entirely supplanted by the Spanish Sparrow, though occasionally a large flock wanders down below the golf-links. In the villages in the Monte it is found nesting under the eaves of the houses, and on the road to Aguimes large flocks are always to be seen.

SERINUS CANARIUS. Canary.

Serinus canaria canaria Hartert, Vög. Pal. Faun. i. p. 84 (1910).

a. Near Santa Brigida, 5000 ft. 22nd Dec. '08.
b, *c.* ♀ et ? Santa Brigida. 4th Jan. '09.
d. ♂. Tirajana, 2700 ft. 9th April '09.
e–h. ♂ ♀. Cumbres (camp 4), 5650 ft. 13th Feb. '11.
i. ♂. Charco, Maspalomas, sea-level. 23rd Feb. '12.
k. Charco, Maspalomas, sea-level. 28th Feb. '12.

Iris dark; bill dark or light horn-coloured; feet brown.

Total length in the flesh 4·9–5·4 inches; expanse of wings 8·7 inches.

The Common "Canary" is very plentiful indeed all over the island, and is by no means confined to the Monte, although it prefers the high ground. It sings gloriously in its wild state, and several may often be heard at the same time; it seems especially fond of the Eucalyptus-trees which line the road from below Santa Brigida to San Matéo.

I saw several at Juncal, 3600 ft. (just below the Pinar), and others again in the pines at the Cueva de las Ninas close to my camp. On the Cumbres the birds are more often seen in flocks; I met with them at 5000 ft., just below Roque Nublo, on Feb. 12th. On the following day, while encamped actually in cloud (5600 ft.), I shot four birds out of a huge flock which I mistook in the mist for that of another species.

In the extreme south-west they are somewhat scarce. I shot two birds in the sand-hills at Maspalomas, not very far from the coast.

ERYTHROSPIZA GITHAGINEA AMANTUM. Trumpeter Bullfinch.

Erythrospiza githaginea amantum Hartert, Vög. Pal. Faun. i. p. 89 (1910)*; Thanner, Orn. Jahrb. xxi. p. 97 (1910).

a. ♂. Puerto Mogan. 25th Jan. '10.
b. ♂. "Alcaravaneras." 31st Jan. '11.
c–d. ♂ ♀. Las Palmas. 20th Feb. '11.
e. ♂. Las Palmas. 10th March '11.
f. ♀. Las Palmas. 6th Feb. '12.

Iris light brown; bill—(specimens *a–d*) salmon-pink, (specimen *e* breeding) bright coral-red; legs and feet yellowish light brown.

Total length in the flesh 5–5·2 inches; expanse of wings 9½ inches.

Examples from the Canary Islands differ from *E. githaginea* in having the back darker.

The Trumpeter Bullfinch is another very locally distributed species found in the island. It is a desert-loving form and prefers the most "dried-up" and arid ground. I first met with this bird near Telde, as I was driving along the main road through very parched country, on April 8th, 1909, and on January 25th of the following year I saw a few close to the beach in the Barranco de Mogan. In 1911 they became much more plentiful in the neighbourhood of the Las Palmas golf-links, and in February several small parties were seen behind the Catalina. A little later, on March 16th, numbers were scattered over the golf-links in small flocks; many were feeding on some newly sown land close by, and the males all appeared to be in brilliant breeding-plumage; they were in company with Short-toed Larks, and the sudden influx of both these usually uncommon species was most noticeable.

The true home of this bird, as I discovered during my last expedition, is the desert tract which lies between Carrisal and Maspalomas. In this district I found it fairly plentiful, wandering over the plains in little parties of from ten to fifteen. It took very little notice of human beings, and I could ride within half a dozen yards of a flock before they would take to flight. It must breed here in very large numbers annually, although I was a little too early this year (1912) to find the eggs. The previous year, while searching the ground to the east of the golf-links on March 18th, I found a nest of this Bullfinch placed in a hollow cup in the ground under the shelter of a stone; it contained four eggs, the ground-colour of which was very light blue thinly spotted with chocolate, and with a cluster of chocolate markings at the thick end.

This entire nest was stolen shortly afterwards by the little Spanish boys, who seem to spend all their time searching for and destroying nests, eggs, and young birds of every species. In the neighbourhood of Las Palmas, at any rate, very few birds can rear their young in peace without molestation of some kind from these human pests. The boys are marvellously quick at finding nests, and their eyesight for detecting birds such as the "Thicknee" is little short of miraculous.

ACANTHIS CANNABINA NANA. Brown Linnet.

Cannabina cannabina nana Tschusi, Orn. Monatsb. 1901, p. 130*.

Acanthis cannabina meade-waldoi Hartert, Nov. Zool. 1901, p. 323.

Acanthis cannabina nana Hartert, Vög. Pal. Faun. i. p. 75 (1910); Thanner, Orn. Jahrb. xxi. p. 97 (1910).

a. ♂. Between San Matéo and Teror. 23rd Dec. '08.
b. ♀. Las Palmas. 30th Dec. '08.
c. ♀. Santa Brigida. 4th Jan. '09.
d. ♂. Monte. 16th Jan. '10.

e, f. ♂ ♀. Above San Matéo (2600 ft.). 10th Feb. '12.

g. Above San Matéo (2800 ft.). 11th Feb. '12.

Iris dark; bill dark greenish horn-coloured; feet brown.

A. c. nana is distinguished by its small size from the European species. Wing-measurements: ♂ (2) 76 mm., (2) 78 mm.; ♀ (2) 74 mm., (1) 75 mm.

Linnets are resident in the island, and may be seen frequenting the grain-fields in large flocks; they seemed particularly plentiful in 1912, and in February there were many hundreds in the fields above San Matéo. They are almost confined to the Monte and the Vega districts, in the south of the island they are rare. Breeding commences in March. The first nest of this species which I discovered was almost complete on March 8th; it was placed in a small fir-tree about twelve feet from the ground, and was composed of small fir-twigs lined with hair. The nest was empty, but on March 12th it contained four eggs, and another was laid between that date and March 14th, when I next visited the nest.

The eggs were bluish white faintly marked with purplish brown.

ACANTHIS CARDUELIS PARVA. Lesser Goldfinch.

Carduelis carduelis parva Tschusi, Orn. Monatsb. 1901, p. 131*; Thanner, Orn. Jahrb. xxi. p. 97 (1910).

Acanthis carduelis parva Hartert, Vög. Pal. Faun. i. p. 69 (1910).

Carduelis carduelis nana Hartert, Nov. Zool. 1901, p. 323.

a, b. ♂ ♀. Las Palmas. 5th April '09.

c. ♂. Tirajana. 9th April '09.

d–f. ♂ ♀. Above San Matéo (2800 ft.). 11 Feb. '12.

This is a small form of the European Goldfinch. Upper parts exceptionally dark.

Goldfinches are met with in some numbers in the Monte and Teror districts. They are never seen very far from cultivated land and at times are found close to Las Palmas. They are resident in Gran Canaria throughout the year, and Herr von Thanner found them breeding in some numbers in Moya. Huge flocks were seen at San Matéo in February (1912), where they were feeding in the fields literally in hundreds. In the south I found them to be decidedly scarce.

The female shot on April 5th contained well-developed eggs in the ovary.

CORVUS CORAX TINGITANUS. Raven.

Corvus corax tingitanus Irby, Ibis, 1874, p. 264 *.

Corvus corax canariensis Hartert & Kleinschm. Nov. Zool. 1901, pp. 45 & 326 ; Thanner, Orn. Jahrb. xxi. p. 91 (1910); Hartert, Vögel Pal. Faun. i. p. 6 (1910).

a. ? Between Aguimes and Tirajana. 8th April '09.

b. ♂. Between Juan Grande and Aguimes. 3rd March '12.

Messrs. Hartert and Kleinschmidt have, I consider, separated the Raven of the Canary Islands from *Corvus c. tingitanus* on somewhat slight grounds.

The following remarks on this subspecies appeared in the Nov. Zool. 1901, p. 326 :—

"We find that the form from the Canaries is distinguished from *C. c. tingitanus* . . . . by its beak, which is longer, straighter, and weaker (where it is equally strong it is longer, where it is equally long it is weaker), and by the edges of the feathers, which are more *Corax*-like and less closed. As a rule, but not always, the feathers of the throat are longer."

On comparing examples from Gran Canaria and Tenerife with the small series of *C. c. tingitanus* in the British Museum, it struck me that the bill in birds from Gran Canaria was, if anything, *heavier* than in examples of *C. c. tingitanus.* This appears to be in direct opposition to the conclusions which Dr. Hartert has arrived at. When a very much larger series from Gran Canaria is available some slight differences may possibly be found to be constant; but as the description of *C. c. canariensis* does not apply to my specimens from Gran Canaria, I prefer to unite these birds with *C. c. tingitanus*, the resident species on the N.W. coast of Africa.

Ravens are numerous in Gran Canaria, particularly in the south of the island near Maspalomas and Juan Grande, where I have seen as many as twenty at a time following the plough. In the Cumbres they are plentiful, and when we were encamped at 5000 ft. their hoarse croakings used to rouse us very early in the mornings as they flew over the tent. They breed in the most inaccessible cliffs, laying from three to six eggs. Specimen *a* had a huge nest placed on a ledge high up a sloping cliff close to the main road. This nest was almost completed on April 8th, but contained no eggs. In the north of the island they are not nearly so common. A pair frequent the cliffs on the north-west and can be seen wending their way every evening over the golf-links towards Guanarteme. They feed largely on carrion, and a dead mule or sheep is sure to attract some of these birds in company with the Vultures.

The following species, not mentioned in the foregoing list, have also occurred in Gran Canaria on migration, as given on the authority of Herr von Thanner:—

Alauda arvensis. Sky-Lark. Near Maspalomas, 25th Feb. and 3rd March. Two and six birds respectively.

Ruticilla phœnicura. Redstart. Pinar near Mogan, 27th March.

Chloris aurantiiventris. Greenfinch. Moya, 12th April.

While Herr Polatzek records *Merops apiaster* (the Common Bee-eater) as a "bird of passage."

Ducks and Waders have been recorded from time to time as having occurred in the "Charco" at Maspalomas. As long ago as 1857, Dr. Carl Bolle, writing in the 'Journal für Ornithologie' for that year, mentions among others the following species as having occurred in the island. I have given the names which Dr. Bolle employed verbatim, adding the English appellations:—

Himantopus melanopterus Temm. Black-winged Stilt. (Maspalomas.)

Totanus calidris Bechst. Redshank.

Ardea minuta Linn. Little Bittern.

[*]*Platalea leucorodios* Keys. Spoonbill. (Arguineguin.)

Phœnicopterus antiquorum Temm. Flamingo. ("Charco," Maspalomas.)

Fuligula nyroca Keys. et Blas. (Isleta.)

Fuligula nigra Degl. Common Scoter. (Canaria.)

Uria troile Lath. Common Guillemot. (Canaria.)

Alca minor Briss. Little Auk. (Canaria.)

XXIX.—*Notes on* Licmetis pastinator (*Western Long-billed Cockatoo*) [†]. By Thomas Carter, M.B.O.U. (Wensleydale, Broome Hill, Western Australia).

(Text-figures 11 & 12.)

As this fine bird has, for some reason, quite disappeared from the districts where it formerly abounded, and seems to be nearing extinction, I send the following notes upon it and its present distribution. Of its life-history and habits hardly anything appears to have been written in existing ornithological literature.

Gould, in his 'Handbook,' describes "the lores and bases of the feathers of the head and front of neck" as being *scarlet*, while Mr. A. G. North, in his Australian Museum, Sydney, Special Catalogue No. I. ('Nests and Eggs of Birds found Breeding in Australia and Tasmania'), gives salmon-colour for these parts, which agrees with the coloration of my series of skins, excepting that the lores and facial feathers in them are distinctly *orange* or orange-scarlet. Gould also states that the naked space round the eye is greenish blue, but in all the birds examined by me, both alive and immediately after death, this bare skin was of a blue colour, varying from a dull leaden shade to almost bright cobalt-blue. Mr. Hall, in his "Key," gives it as "blue lead." Mr. North does not mention the colour of this part in his descriptions of *Licmetis nasica* and *L. pastinator*. Apparently Gould had no personal experience of *L. pastinator* in its wild state, and it is possible that his description of that species was made from a specimen of *L. nasica*, probably one kept in confinement.

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[*] In the Museum at Las Palmas there is a Spoonbill labelled "Puerto de Luz, 21 Oct. 1880."

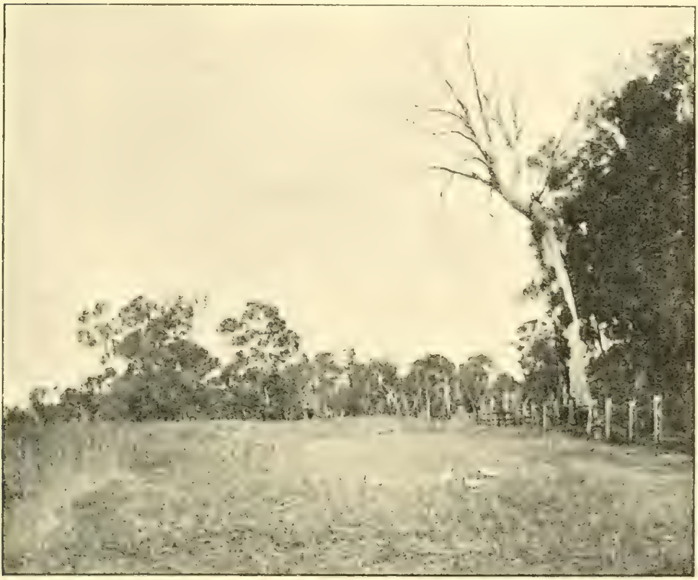
[†] See Campbell, 'Nests and Eggs of Australian Birds,' p. 620.

In Mr. A. J. Campbell's 'Nests and Eggs of Australian Birds,' p. 620, he gives the distribution of *L. pastinator* as West and North-West Australia, having apparently been misled, so far as the latter district is concerned, by statements from various observers, myself included. He corrects this statement in the 'Emu,' vol. i. p. 25. The furthest northern point (of which I can find definite mention) to which *L. pastinator* extends is the Yandanooka district, about 220 miles north of Perth, W.A., where Mr. Milligan says that he observed it in September 1904 (*vide* 'Emu,' vol. iv. p. 152). Possibly it may have occurred round Geraldton, fifty miles further north, before that district was closely settled, but lat. 29° S. seems to be about its limit in recent years. Mr. North mentions specimens in the Australian Museum as having been obtained at King George's Sound [Albany] in 1886, and at the Salt River [Pallinup River] in 1868, also a specimen that was killed with poisoned wheat in a corn-field near Broome Hill in June 1889. I settled in the last-named locality in 1905, and have heard from many old residents that this Cockatoo occurred in countless numbers about the Northern and all along the Great Southern Railway districts from York to Albany, and caused such destruction to the corn-crops (mostly wheat) that boys were employed to shoot and frighten the birds away, and that it was customary to lay poisoned wheat wholesale in order to reduce their numbers.

As none of the birds were then to be seen, and as I could not learn of any district in which they were to be found, it certainly seemed as if the above-mentioned measures had been successful. Still it was hardly possible that all had been killed, as, from what I could learn, they had suddenly disappeared a few years previously. It seemed more probable that the survivors had moved to other localities, but the puzzle was "where"? I instituted enquiries in various districts, and made several extended tours in the hope of finding a colony of these Cockatoos, in the course of which many caged specimens were seen at farms and other houses, but queries as to when and where they had been captured invariably met with the same answer, namely, that they had been taken from nests years previously, when the Cockatoos abounded, but that none had been seen for many years. From stations at the eastern extremities of the Stirling and Poron-group ranges, I learnt that the last Cockatoos had been seen there about 1900, and that single birds, or a pair, could occasionally still be met with about one hundred miles further eastwards. In the extreme south-west corner of West Australia, near Cape Leeuwin, I was told by Mr. W. Brockman, of the Warren River, that in the course of the last few years he had noted one or two Cockatoos in the dense Karri forests there, but that their appearance was now very rare. A Government surveyor at work in that neighbourhood told me that he had noticed a pair of White Cockatoos about fifty miles to the westward. In the early part of 1910 I made the acquaintance of Mr. A. Muir, who informed me that White Cockatoos could be found at certain seasons in a remote district of the south-west of this State, near the large fresh-water swamp of Tordit, where he owned an out-station. In March of that year a young farmer told me that only a few days previously he had observed a very large flock of White Cockatoos feeding on an open sand-plain not far from the above-named swamp, so I judged that at last I was getting "on their tracks." In October 1910 I received a letter from Mr. Muir stating that the Cockatoos were numerous on his out-station, and that young birds were being hatched out. He very kindly invited me to visit him, but I was unable to leave home then. In April 1911 I took a circular driving tour of more than two hundred and fifty miles through localities where the birds had once been plentiful, but had not been seen for many years, and visited Mr. Muir's station. On my arrival, however, I was told to my great disappointment that the birds had been there early in March in considerable numbers, but had left before the end of that month. Mr. F. Muir, who manages his father's station, told me that many years previously the Cockatoos had been abundant and were very destructive to his corn-crops. They then completely disappeared for many years, but about three years ago had returned and were increasing in numbers. He also said that they would come back again as soon as the winter rains commenced.

I stayed some days at this station, but, seeing no signs of the birds wanted, returned home, and early in June received a letter saying that the Cockatoos were at their old haunts! In December last, through the great kindness of Mr. Muir, who lent me a horse and carriage for the long drive from the railway, I was able to revisit the swamps, where I spent ten days. A few miles before arriving at the house several pairs of *Licmetis pastinator* were observed flying about, and when the corn-crop was sighted I had the pleasure of seeing hundreds of the birds busily feeding on the tops of the stooks, many of which were white with their numbers, much to the disgust of Mr. F. Muir, who had accompanied me. He begged me to shoot as many as possible, and upon walking round the crop, some of which was still uncut, his anger increased on finding that a strip about two hundred yards in length, and thirty in width, was completely ruined by having been pulled down and trampled flat on the ground by his unwelcome visitors (see text-fig. 11, p. 631). To obtain specimens required a good deal of patient stalking, which was often unsuccessful, as sentinel birds were always placed on the summits of the lofty trees. However, a good series of skins was obtained, and some notes on the birds' "habits" made, for many of which I am indebted to Mr. Muir. To my surprise, every Cockatoo killed had the whole of the feathers on the under part of the body thickly smeared over with dry mud and vegetable stains, giving the birds a very dirty appearance. Close scrutiny of great numbers of the Cockatoos through my binoculars at various times, when they were perched on the summits of dead trees, failed to reveal any that had really clean under-plumage, and I was informed that this dirty condition is the normal state, and that the only clean birds are recently fledged young, which soon become like the rest. Some specimens presented to me, that had been shot in July, were also dirty. I find no mention of this soiled plumage in any account of the birds that I have read.

Text-fig. 11.



Strip of standing wheat-crop trampled flat and destroyed by *Licmetis pastinator*.

When corn is not obtainable, the Western Long-billed Cockatoo feeds largely (like its eastern form, *Licmetis nasica*) upon the bulbs and roots of various plants. One of its favourite foods is the bulb of a small species of Sundew (*Drosera*) that grows as soon as winter rains fall, bearing a small white flower. The scarlet berries of a small creeping plant (the name of which is unknown to me) that grows abundantly on sand plains are also much eaten. Probably the March visits of the Cockatoos to the station are made in order to feed upon the newly sown wheat-grains. The locality is mostly heavy timber country in its natural state, the nearest homestead to the eastward being about forty miles distant, and the country to the south and west being much the same accounted for the Cockatoos taking such heavy toll of Mr. Muir's crops.

The breeding-season commences apparently in September, continuing through October, when the young are mostly hatched. Two or three eggs is the usual clutch, and the nesting-cavity is almost invariably in the ends of hollow limbs or in the main stem of large living Red Gum Trees (*Eucalyptus calophylla*). Ring-barked trees (*i.e.* trees purposely killed by the axe) were not chosen for nesting-sites, neither were the Jarrah trees, which were more numerous than Red Gums and grew along with them.

Several nesting-cavities came under my notice, evidently containing young birds, but all were in inaccessible situations (to me), and the station hands were too busy harvesting to spare the time to fell one of the giant trees. One hole was shown me, about thirty feet only from the ground, in the trunk of a very large Red Gum, where a brood had been reared for three consecutive years. Apparently the young birds remain in the nesting-place until they are strong on the wing, as Mr. F. Muir said that he and some of his men had several times cut down a tree to obtain youngsters, and just as the tree was falling they had emerged and flown strongly away. One nest, from which a parent bird had been observed to fly on different occasions (see text-fig. 12, p. 633) was placed in a tall green (*i.e.* living) Red Gum, surrounded on all sides by acres of gaunt dead trees. The sitting birds leave the nests rather wildly, and do not readily return.

At the earliest signs of dawn, long before sunrise, the

Cockatoos are on the wing, and are very noisy and restless throughout the day, feeding at all hours. On one occasion only did I see them shew any degree of tameness. I was engaged in examining the old nest of a Shelduck, which was placed about twenty-five feet from the ground in the hollow limb of a Yate-tree, when two Cockatoos perched in the upper branches and exhibited great curiosity as to my doings. The tree was growing on the edge of the corn-crop, and doubtless the birds had settled in it, preparatory to a feed of corn, before they noticed my presence.

Text-fig. 12.

Living Red Gum-tree in the foreground containing a nest of *Licmetis pastinator.*

In Mr. North's account of this species, in his 'Nests and Eggs,' he quotes a letter from Mr. Keartland saying that "a friend of his took an egg of *L. pastinator* in S.W. Australia in *March* 1895, and afterwards found two more nesting-places, each containing a young bird." March, is of course, one of our hottest and driest months, and seems a very unlikely breeding-time, but perhaps I have misunderstood the quotation or it was meant that the letter was written in March. Mr. North also quotes from a note of Mr. Keartland's that *Licmetis nasica,* which was formerly abundant in Riverina, had deserted that district when sheep took the place of cattle on the grazing stations. Now, in the case of Mr. Muir's out-station, visited by me, the reverse seems to be the case, as in former years cattle *only* were run there, but in recent years, when *Licmetis pastinator* has been abundant, sheep only have been kept. Most probably the isolated corn-crop there is the great attraction at the breeding-season.

The average weight of *Licmetis pastinator* seems to be about 1 lb. 10 oz., as two lots of four birds that were weighed each amounted to 6½ lbs. and a lot of three birds 5¼ lbs.

I may mention that Cockatoos make an excellent stew, the meat being plump and tender. Wounded birds will savagely attack and bite one's boots, and need to be carefully handled.

Measurements of Licmetis pastinator *in inches.*

Date.	Sex.	Total length.	Wing.	Tail.	Bill.	Tarsus.
1/12/11	♂	17·5	12	6	1·9	1
1/12/11	♂	18·5	13	7·25	2·1	1
4/12/11	♂	18·25	12 5	7	1·75	1
4/12/11	♂	18 75	12·75	6·5	1·95	·95
4/12/11	♂	18·5	13	7	2·1	1
25/7/11	♂	19	12·5	6·75	2·1	·9
4/12/11	♀	18·5	12	7	1·75	·95
1/12/11	♀	18·75	13	7	broken	1·5
4/12/11	♀	17·25	12·25	6·75	1·95	·9
1/12/11	♀	18·75	12·25	6·5	1·8	·9
25/7/11	♀	18·5	12	6·75	1·75	1
4/12/11	♀	17·75	12	6	1·9	·95
4/12/11	♀	18	11·75	7	1·8	1
4/12/11	♀	18·5	12·25	7	1·7	·95
6/12/11	♀	18·75	12·25	7	1·8	·9
Giving an Average for males of....		18·4	12·62	6·8	1·98	·98
and for females....		18·2	12·8	6·6	1·8	1

XXX.—*Remarks on the Stomach-contents of Birds.*
By C. F. M. Swynnerton, C.M.B.O.U.

On reading the conclusion of Mr. G. L. Bates's extremely interesting account of the Birds of Southern Cameroons (Ibis, 1911, p. 630), I was much struck by the fact that his results, from a not over-minute examination of stomach-contents of birds, much resembled mine up to December, 1908. Out of more than a thousand stomachs of which I had then noted the insect-contents, I had recognised remains of butterflies in only five. And the instances in which I had actually witnessed an attack of birds on butterflies were hardly more numerous.

This is evidence that might, not unreasonably, have been held to justify the belief that the birds of Northern Gazaland probably "do not feed to any great extent on butterflies." Yet when, urged by my friend Mr. G. A. K. Marshall, I lately set to work by special observation and experiment to really get to the bottom of what takes place in this locality, I obtained, within three years, records of several hundred attacks: a total reversal of previous results that seems to suggest that negative evidence drawn from a not over-minute examination of stomach-contents should not be too implicitly relied upon. It may be of interest to go into some of the probable reasons for this.

1. *Removal of wings; rejection of head; piecemeal eating.*

It is a fact that, at Chirinda, birds appear usually to swallow their smallest butterflies whole; that very many (*e. g.* most of the Picariæ that I have observed) do the same for even the largest; and that some of those that do dis-wing them often do so more or less incompletely; also that the head of an unpleasant species may, very occasionally, be swallowed and the rest rejected.

On the other hand, the wings *are* very often removed, some birds habitually going to very great trouble in this connexion; the head has on many occasions, in my observations, been rejected; and there are many birds that eat their larger butterflies piecemeal. The latter process is likely to be particularly effective in quickly disguising the identity of an insect with so weak a chitinous covering. In the case of the only two Ploceids on which I have experimented, the butterfly was commonly reduced by fine nibbling to a flat and almost unrecognisable pulp even before it was swallowed.

2. Some, probably most, insectivorous birds digest with great rapidity, and they get rid of the chitin they have swallowed in two ways: (1) crushed small, in the excreta; and (2) in the form of pellets that are brought up at longer intervals. It had been suggested to me by the examination of the pellets and excreta respectively of several species, that the wings of some of the insect-orders and the weaker chitin generally are probably, as a rule, more rapidly and thoroughly disintegrated than the harder portions, and that much of the former may already be passing out through the intestines and so lost to the stomach-examiner at a time when the more obstinate fragments of the same meal are still awaiting, in the stomach, their expulsion with the next pellet; and, so far as they went, a few special experiments on specimens of *Lanius, Laniarius*, and *Dicrurus* quite confirmed this view.

3. In these experiments the wings of butterflies appeared for the most part, both in the pellets and the excreta, as narrow, oblong, transparent strips varying from roughly half a millimetre to one and a half in length by, frequently, only the distance between the rows of scale-bearing "collars." They were readily recognisable only under the microscope. This thoroughness of disintegration, if it represents what usually takes place, must be highly destructive to evidence, and should be given full consideration. After large butterfly-feeds of some of my captive birds I have often (though not invariably) felt, in examining a pellet composed almost solely of butterfly débris, that had I found that mass in a bird's stomach and subjected it merely to the usual rough examination, my verdict might well have been "Fine insect-débris, unrecognisable." The special experiments that I have referred to have afforded further excellent examples:

even where butterflies had preponderated, there was often quite a difficulty in detecting their presence in the ensuing pellets, yet no difficulty whatsoever occurred over the hard-chitined beetles and grasshoppers eaten along with them. There was an indication in one case that such tough, pliable wings as those of the *Danaidæ* may form a partial exception to the rule.

These considerations should, of course, be quite as applicable to other comparatively fragile-bodied insects, arachnids, &c., as to butterflies ; and it seems to me somewhat unlikely that many insects of this kind will continue to be readily recognisable for long after having been swallowed ; in other words, that the majority of those we do readily recognise are probably recent captures. Even the occasional ability to recognise large numbers of Diptera—as such—in a single stomach does not necessarily tell against this view, when we remember the enormous numbers in which these insects are often present and the rapidity with which, therefore, the stomach may have been filled with them after the ejection of a pellet.

How comes it then, if butterflies are not, as a class, disliked, that they appear to have been less frequently found in birds' stomachs than equally (or more) weak-chitined insects of certain other Orders or than spiders ?

Possible Reason 4. My observations and experiments support the view that certain species of birds have become specialized to prey on certain abundant orders, particularly at Chirinda on Diptera, and probably, in the case of Sunbirds, on spiders.

In such cases it seems not unlikely that, so long as the object of their special affections is present continuously and in great abundance (and only so long), the particular birds in question will seldom quite find " room inside " for even the pleasanter species, not only of butterflies, but, equally, of the other Orders outside their favourite domain ; and that, if shot at such times, members of these Orders will rarely be found in their stomachs.

Nevertheless, and this should be particularly noted, I have witnessed a good many attacks on butterflies by several such apparent "specialists" at times when their specialty happened to be present in less abundance.

5. Were I to say that during the past year, the first during which I have paid special attention to this particular point, small Diptera, excluding house-flies, have been on the average five hundred times as numerous on Mount Chirinda as butterflies, I should, I firmly believe, be guilty of a very considerable understatement of what has actually been the case. But, to be well on the safe side, I will place it at that figure. The law of probabilities, then, would lead us to expect that for every butterfly found by a collector during the past year in the stomachs of our local birds, he ought, other things being equal, to have found five hundred Diptera. This argument might well be extended to embrace some of the harder Orders. Thus grasshoppers are here several times more numerous than butterflies all the year round. The same may be said of beetles during at least a few months of the year. And Hymenoptera, including as they do both ants and honey-bees, are vastly more numerous here than the diurnal Lepidoptera.

6. Although I did not use Diptera in the special experiments I have referred to, I have on several other occasions taken their wings whole and undamaged from pellets and excreta in which the wings of Lepidoptera had been reduced to the minutely fragmentary condition described above.

7. I have noted the pellet-habit on the part, I believe, of every carnivorous or purely insectivorous bird that I have kept in captivity: Owls, Hawks, Passerines, large and small, and Picarians. More or less frequent in any case, it seems to come into play most when food is so continuously abundant that, if the bird is to use that abundance to the very best advantage, the intestines must be specially aided to get rid of the masses of chitin by which it is so commonly accompanied. It seems likely, therefore, that where in nature the food-supply is both abundant and comparatively uninterrupted, it may be no unusual thing for several pellets to be

brought up in the course of a single day; so that, even were *all* chitin held over for evacuation by mouth, the examiner of a bird's stomach could expect to find there at a given moment indications of the food eaten during only a comparatively short time previously. Even the most minute examination of a merely moderate number of stomachs of a given species cannot, therefore, be held to have necessarily thrown full light on its feeding habits.

I need not, I think, enter into the question, "Why have more actual attacks on butterflies not been witnessed"? In the first place, it is outside the scope of this note; in the second, Mr. G. A. K. Marshall's splendid collection of records (Trans. Ent. Soc. 1909, p. 329) tends to shew that many more have been witnessed and recorded than seems to have been commonly supposed; and, thirdly, Dr. Trimen's suggestion (Proc. Ent. Soc. 1897, p. 89), "the neglect of well-directed and sustained observation," doubtless accounts for much. But (for reasons already stated under No. 5 above), I should, in any case, so far as Chirinda is concerned, be extremely surprised to see as many or, under ordinary circumstances, anything like as many attacks on butterflies as on insects of other Orders.

To sum up the actual subject of this note, my recent work has convinced me that conclusions based on stomach-examination are likely to be fallacious, unless that examination has been so thorough and minute that even such small objects as the scales of Lepidoptera must have been detected if present even in small numbers, in either stomach *or intestines*, unless a very large series has been so examined for each species, and unless, finally, a note had been made at the time of the shooting of each specimen as to the probable proportions in which insects of various kinds were present at the moment. The re-examination is also suggested of all such stomach-contents, still available, as have not been already thus exhaustively investigated, special attention being paid to the dust and finer débris. The difficulty of distinguishing between moth and butterfly débris will always be present, yet even here something may perhaps be done. Thus out of twenty small excreta picked up at random in the Chirinda Forest and containing various remains, eighteen (a proportion that astounded me) proved to contain the scales and small wing-fragments of Lepidoptera, and in several cases these were indistinguishable under the microscope from those of *Mycalesis campina,* a butterfly that was present at the moment in considerable numbers. The examination of large numbers of excreta, particularly when, as at the nest, the bird can be identified, appears to me as likely to be a somewhat useful line of research.

XXXI.—The Progress and Condition of the United States National Museum at Washington.*

The final accession of birds in 1910–11 from the Smithsonian African Expedition comprised 1,379 dried skins and 213 alcoholic specimens, skeletons, and eggs, and supplied many desiderata, of which the most important was the Shoebill, *Balaeniceps rex,* a form not hitherto represented in any American museum. It also contained examples of other genera new to the collection, including *Anastomus*, *Dicrocerus*. *Macrodipteryx*, *Scotornis*, *Cryptorhina*, *Sorella*, and *Elminia*, and of numerous species and subspecies now first obtained from this source. Ninety skins of Chinese birds were received from the Museum of Comparative Zoology in exchange; and 83 skins from Luzon, Philippine Islands, were presented by Dr. H. C. Curl, United States Navy. The last consignment from the Java Expedition of Mr. Owen Bryant, consisting of skins, nests, and eggs, contained several examples of the interesting Weaver-birds (Ploceidæ). Skins of North and Central American species to the number of 1,240, among which are many well-prepared specimens of water-birds and waders, were obtained from Mr. Edward J. Brown, of Washington, partly by gift and partly by purchase. In the course of a hunting trip to the coast of South Carolina near Charleston, lasting five weeks, Dr. E. A. Mearns (United States Army), Mr. J. H. Riley, and Mr. E. J. Brown made for the Museum an interesting collection consisting of 607 skins, 52 eggs, and 2 nests, including topotypes of numerous species originally described from the drawings of Mark Catesby. Several important forms new to the Museum and desired for the exhibition series were purchased. Among them are two Birds of Paradise, *Astrapia rothschildi* and *Parotia carolæ*, a Hornbill, *Rhyticeros narcondami*, a Jay, *Lalocitta lidthi*, and specimens of *Globicera wilkesi*, *Globicera auroræ*, and other species from Polynesia.

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* Extracted from the "Report and Condition of the U.S. National Museum for the year ending June 30, 1911." Washington: Government Printing Office. 1911.

The reserve collection of bird-skins and eggs occupies 420 large standard cases. The rearrangement of the skins, which had become exceedingly crowded in their quarters in the Smithsonian building, was completed for 96 cases, 52 of which were also furnished with case labels. Labels indicating the contents of each drawer were prepared for the North American eggs, and a beginning was made in assembling the data for those required for the skins. Specimen labels were written for about 2,700 skins. Some 3,500 mounted specimens withdrawn from exhibition several years ago were examined, and those considered desirable to return to the reserve series were set aside for dismounting. About 30 types reclaimed from the general collection were suitably labelled and placed in the type cases. The alcoholic specimens, now stored on the ground floor in the same compartment as the reptiles, were extensively renovated and rearranged, and much was done toward completing their labelling and recording. The collection of skeletons, skulls, and sterna remains to be overhauled. The card catalogue serving as an index to the alcoholic specimens and skeletons has, to a large extent, been verified and the nomenclature revised.

The curator of the division, Mr. Robert Ridgway, completed the manuscript of Part 5 of the Museum Bulletin 50, entitled "The Birds of North and Middle America," and by the close of the year the printing of this volume was well advanced. He also made considerable progress in the arrangement of the data for Part 6 of the same work. Dr. E. A. Mearns continued the preparation of his report on the birds collected by the Smithsonian African Expedition, and Mr. William Palmer devoted some time to working up the birds obtained in Java by Mr. Owen Bryant and himself. Mr. A. C. Bent, of Taunton, Massachusetts, who, at his own expense, is proceeding with the work on the "Life Histories of North American Birds," begun by Major Bendire and continued by Dr. Ralph, examined material at the Museum and made one or more field trips during the year.

The collections of the division were consulted by members of the staff of the Biological Survey and by many ornithologists from different parts of the country and from abroad. Among the latter may be mentioned Mr. W. E. Clyde Todd, of the Carnegie Museum; Mr. Witmer Stone, Curator of the Academy of Natural Sciences of Philadelphia; Mr. Frank M. Chapman and Mr. W. de W. Miller, of the American Museum of Natural History; Dr. Glover M. Allen and Mr. William Brewster, of the Museum of Comparative Zoology; Mr. Charles B. Cory and Mr. W. H. Osgood, of the Field Museum of Natural History; Mr. B. H. Swales, of Grosse Ile, Michigan; Dr. L. C. Sanford, of New Haven, Connecticut; Mr. Abbott H. Thayer, of Monadnock, New Hampshire; Dr. R. W. Shufeldt, and Rear-Admiral R. E. Peary, United States Navy, of Washington; Hon. Dean C. Worcester, Secretary of the Interior of the Philippine Islands; Mr. Anastasio Alfaro, Director of the Museo Nacional, San José, Costa Rica; and Mr. J. H. Fleming, of Toronto, Canada.

XXXII.—*Further Notes on the Birds of the Island of Formosa.*
By W. R. Ogilvie-Grant, M.B.O.U.

(Plates XIII. & XIV.)

In January 1912, Mr. Walter Goodfellow paid a second visit to the highlands of Formosa, his principal object being to obtain living examples of the splendid Mikado Pheasant. With this end in view he formed two camps on Mount Arizan, one at about 7000 ft., and a second about 14 miles to the north at about 8000 ft. His mission has proved highly successful, for, after many difficulties, he succeeded in catching, with the aid of the savages, thirteen living Pheasants. Two of these were accidentally killed by the falling branch of a tree, but the remaining eleven, eight males and three females, were brought safely to England and are still in perfect health. Among the collection of skins brought home there were a few pairs of the Pheasant; likewise examples of many interesting forms peculiar to Formosa: two of these, a Bullfinch and a Bush-Robin, are now described for the first time*.

The discovery of a second species of *Pyrrhula* and a second species of *Ianthia*, both inhabiting the same ground as *P. owstoni* and *I. johnstoniæ*, is specially noteworthy.

The present collection also contained examples of four new species and subspecies which have already been described [*cf.* Bull. B. O. C. xxix. pp. 107–109 (1912)], viz., *Parus ater ptilosus*, *Horeites acanthizoides concolor*, *Brachypteryx goodfellowi*, and *Dicæum formosum*. The discovery of a Flower-pecker in Formosa adds a new family to the fauna, to which Mr. Goodfellow has added no fewer than sixteen new species, most of them being remarkably distinct forms.

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* *Cf.* Ibis, 1907, pp. 151–279, pls. iii. & iv.; 1908, pp. 600–608, pls. xii. & xiii.

CARPODACUS FORMOSANUS.

Carpodacus incertus Ogilvie-Grant (nec Risso), Bull. B. O. C. xvi. p. 122 (1906); Ogilvie-Grant & La Touche, Ibis, 1907, p. 161; 1908, p. 601; Rothschild, Bull. B. O. C. xxi. p. 9 (1907).

Carpodacus formosanus Ogilvie-Grant, Bull. B. O. C. xxvii. p. 51 (1911).

A fine series of this Rose-Finch was procured on Mount Arizan between January and March, including adult males and females and immature males.

The British Museum has also received examples of this Finch obtained on Arizan in the month of August and presented by Mr. A. E. Wileman. I quite agree with Mr. Rothschild that the male most nearly resembles that of *C. vinaceus* from Western China, but is easily distinguished by its larger size, wing 81 mm. as compared with 73 mm.; the darker purplish-lake coloured abdomen; and the whiter and less rosy superciliary streaks.

PYRRHULA OWSTONI.

Pyrrhula owstoni Rothsch. & Hart. Bull. B. O. C. xxi. p. 9 (1907).

Mr. Goodfellow obtained two males of this interesting species of Bullfinch on Arizan at 7000 and 8000 ft. in February and March. Two females killed on Arizan, 7200 ft., on the 15th August, 1908, had previously been presented to the National Collection by Mr. A. E. Wileman. The sexes are alike in plumage with the exception of the outer margin of the short innermost secondary, which is dull crimson in the male and cream-colour in the female. In addition to this species Mr. Goodfellow was fortunate enough to discover a second species allied to *P. erithacus*, which is described below.

PYRRHULA ARIZANICA, sp. n.

Adult? male. Most nearly allied to *P. erithacus* Blyth, from Sikkim, of which it is no doubt the representative form in Formosa. The specimen is probably not fully adult, only the sides of the breast being partially reddish-orange. It differs in having the black on the forehead wider, not bordered posteriorly by a distinct whitish band; the outer web of the innermost secondary purplish-black like the longer feathers, and the rest of the crown and back of a more slate-grey. Iris brown; bill black, slate-coloured at the base; feet brownish-flesh-colour. Wing 84 mm.

Adult female. Much like the female of *P. erithacus*, but the white bar bordering the black forehead posteriorly is nearly obsolete, whereas in the latter it is strongly marked; the back is greyer and the general colour of the breast smoky-brown, rather than vinaceous-brown; the outer web of the innermost secondary has a pale brownish-white patch next the shaft. Iris brown; bill black; feet brownish. Wing 83 mm.

Mr. Goodfellow has supplied the following note regarding the discovery of this species:—

"This Bullfinch was obtained in the same locality as *P. owstoni*, with which it probably associates. During January, February, and March, Bullfinches were observed in small parties of from eight to a dozen always in the tops of the lofty cypress trees, and generally out of shot. The number collected, therefore, was small, and the tops of the trees being often more or less obscured in fog added to the difficulty of obtaining specimens. A few were lost in the thick undergrowth or fell down inaccessible places. Speaking of Bullfinches generally, I should not call them rare on Arizan, and I have reason to believe they were more numerous a little lower down than my second camp and on the other side of the mountain. It is probable that during other seasons, when berries are ripe on the lower trees and bushes, they are much easier to shoot. Only once did I hear their call, which is exactly like that of our home bird. During my first expedition to Formosa in 1906, I never met with a Bullfinch on Mt. Morrison, and, after seeing the kind of forest they inhabit, I doubt much if they are to be found in any of the parts I visited, although, judging from the habits of our English species, that country seemed more suitable for them than Arizan."

SITTA SINENSIS.

Sitta sinensis Verr.; Ogilvie-Grant & La Touche, Ibis, 1907, p. 167; Ibis, 1908, p. 602.

Several additional specimens of the Nuthatch from Arizan, &c., have now been examined, and appear to be indistinguishable from Chinese examples.

REGULUS GOODFELLOWI.

Regulus goodfellowi Ogilvie-Grant; Ogilvie-Grant & La Touche, Ibis, 1907, p. 167, pl. iii.

This lovely Fire-crested Wren was fairly common on Arizan at 8000–9000 ft. in February and March, and Mr. Goodfellow procured about a dozen examples of both sexes which do not differ in any way from the typical pair obtained on Mount Morrison at 9000–10,000 ft. in January 1906. It was occasionally met with travelling through the forest in company with flocks of *Parus ater ptilosus* and other species of small forest birds.

PARUS ATER PTILOSUS. (Pl. XIII. fig. 2.)

Parus ater ptilosus Ogilvie-Grant, Bull. B. O. C. xxix. p. 108 (1912).

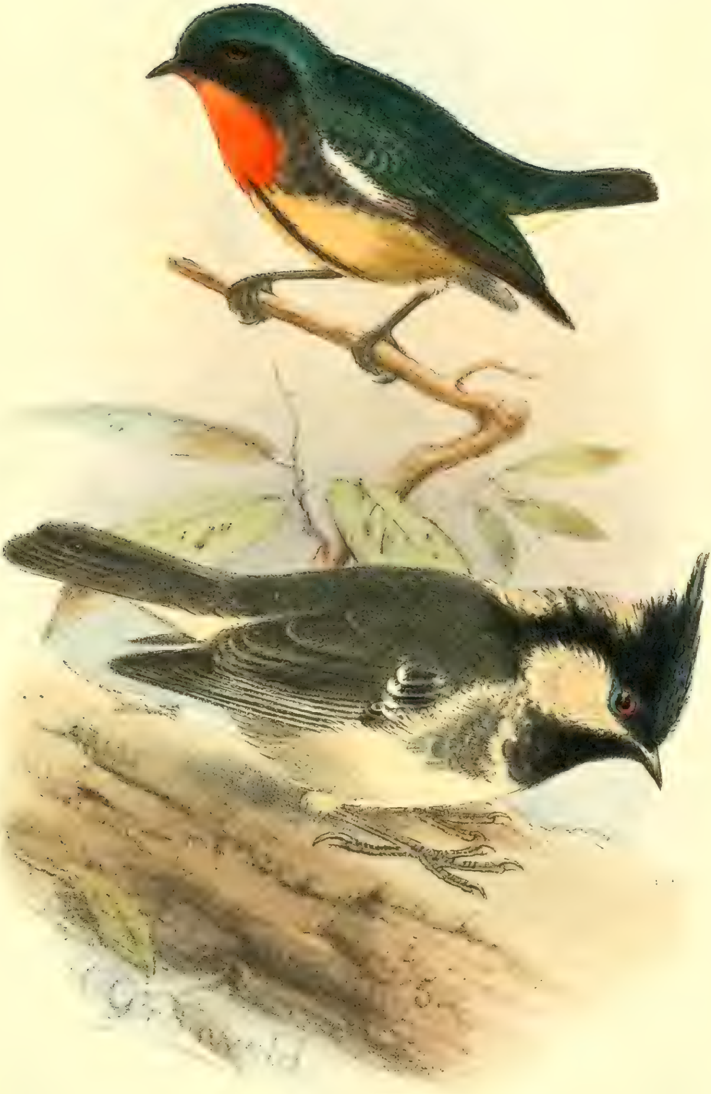
This very interesting crested form of the Coal-Titmouse has been described as follows:—

Adult male and female. Near *Parus ater insularis* Hellmayr, but distinguished by having the median black feathers of the occiput considerably lengthened (about 19 mm.), extending conspicuously beyond the other feathers and forming a marked crest. Iris brown; bill black; feet slate-colour.

Male. Wing 61 mm.; tail 43; tarsus 17.
Female. „ 57 „ ; „ 40; „ 16.

Mr. Goodfellow has kindly supplied me with the following notes regarding this crested Coal-Titmouse:—

"This species was not uncommon at 8000 ft., and was usually observed in company with other small birds. After hours had passed without the song of a bird being heard, a large mixed flock of small birds would suddenly appear, temporarily animating the gloomy forests with their presence.



H. Grönvold del. Witherby & Co. imp.

DICÆUM FORMOSUM.
PARUS ATER PTILOSUS.

When their course was downwards they resembled nothing so much as a shower of leaves blown from one tree to another. The species mostly congregating together were *Yuhina brunneiceps*, *Alcippe morrisonia*, *Ægithalus concinnus*, and *Parus insperatus*, the first-named being by far the most numerous and the most charming in all its habits. *P. ater ptilosus* was among the least numerous, and occasionally the party included examples of the lovely Fire-crest, *Regulus goodfellowi*. I always remarked that the flocks were either led or followed by some larger species, usually *Actinodura morrisoniana*, but sometimes *Malacias auricularis*.

"These Coal-Titmice were nesting early in April, and I saw one close to the summit of the mountain, at an elevation of 9000 ft., carrying a grub to a nest in a cypress tree. The crest is at all times conspicuous."

HOREITES ACANTHIZOIDES CONCOLOR.

Horeites acanthizoides concolor Ogilvie-Grant, Bull. B.O.C. xxix. p. 107 (1912).

This small Bush-Warbler differs from *H. brunnescens* (Hume) from India in having the breast and belly darker; while from *H. acanthizoides* (Verr.) from China it is distinguished by having those parts much less yellow. It has been described as follows:—

Adult male and female. General colour above (including the wings and tail) brownish-olive, inclining to rufous on the top of the head, nape and mantle, but especially on the outer webs of the secondary quills; rump washed with yellowish-olive; a blackish patch in front of the eye, above it a pale yellowish-white streak, commencing on the lores and passing over the eye to the occiput: chin, throat, and chest white, tinged with buff, shading into dull yellowish-buff on the head and rest of the under parts. Iris brown; bill brown, creamy-yellow at the base; feet dull yellow.

Male. Total length about 100 mm.; wing 51; tail 47; tarsus 22.

Female. Total length about 100 mm.; wing 49; tail 44; tarsus 19.

Mr. Goodfellow remarks:—"This was another species which appeared on Arizan simultaneously with *Brachypteryx goodfellowi.* During my stay there it was quite solitary in its habits. At first one might be heard around the camp once in two or three days, and latterly a little oftener. It also frequented the bamboo-scrub, but was not averse to shewing itself like *Brachypteryx*: in fact, it seemed quite a quizzical little creature, and often came within a few feet of the entrance to the camp. With tail cocked straight up and head bent low, it scolded us in a voice like the sound made by a Cicada. Needless to say, with such habits it was difficult to shoot cleanly, and it was necessary to wait until the bird retired to thicker cover so that there was something to break the force of the shot. Its insect-like notes appeals strongly to the musical ear of the Japanese. The species was found right up to the summit of the mountain."

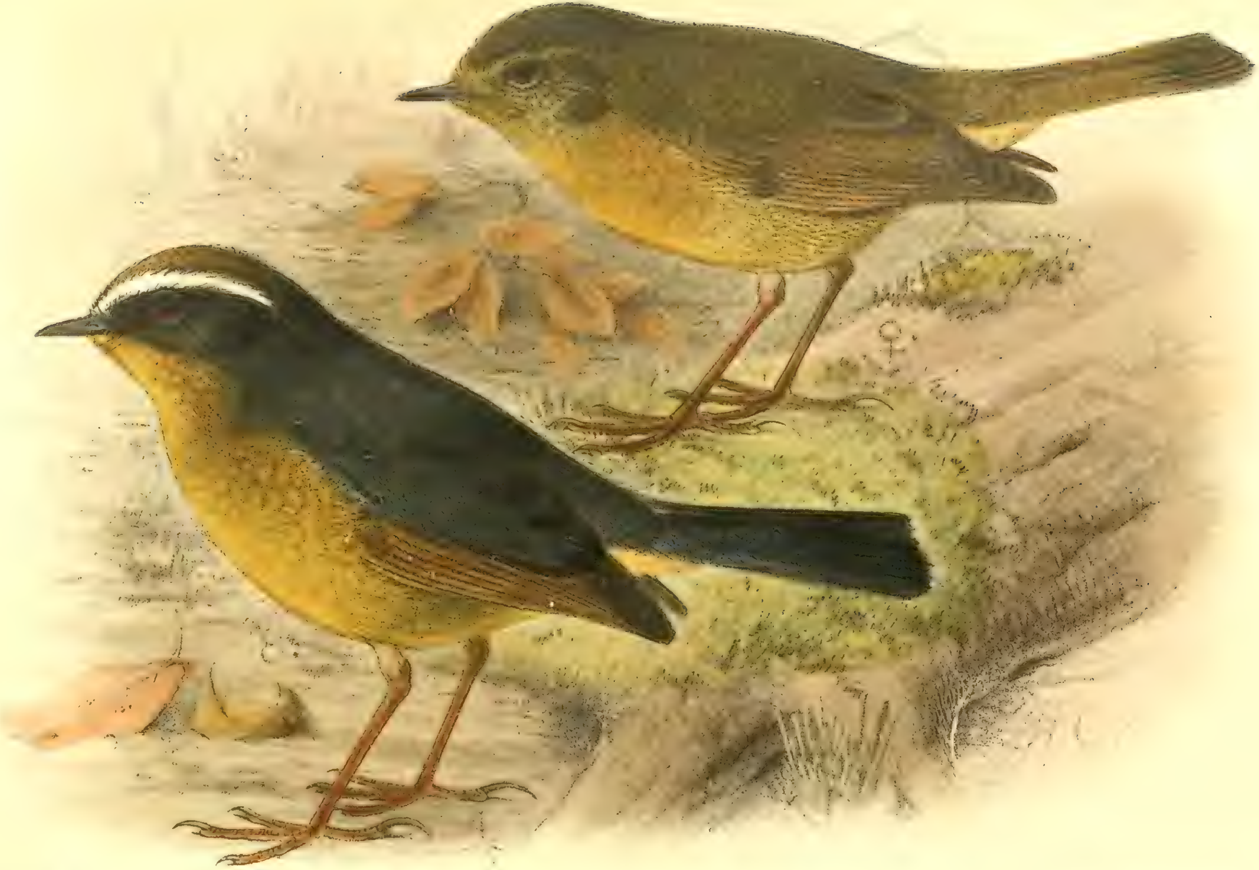
IANTHIA JOHNSTONIÆ.

Ianthia johnstoniæ Ogilvie-Grant; Ogilvie-Grant & La Touche, Ibis, 1907, p. 175, pl. iv.

Mr. Goodfellow procured a fine series of adult males of this remarkable Bush-Robin, but only two or three females.

Among the specimens from Arizan presented to the Museum by Mr. A. E. Wileman, and collected in August, there are three immature examples of both sexes. These are of special interest, as they prove that the male bird assumes his chestnut-maroon and black plumage as soon as he moults out of the spotted nestling plumage. This, as shown by two males before me, is brown with pale sandy-buff shaft-streaks dilated towards the tip. The young female has similarly marked nestling feathers.

The discovery of another extremely distinct new species of *Ianthia* in the same locality as *I. johnstoniæ* is very remarkable, and its description is given below.



IANTHIA GOODFELLOWI, sp. n. (Pl. XIV.)

Adult male. Crown and nape dull olive; lores and ear-coverts blackish, sometimes washed with blackish-slate; a wide white superciliary band commencing above the lores and extending to the occiput; upper parts dark slate-grey; chin and throat pale buff; chest and breast darker buff tinged with olive, especially on the sides of the body, flanks, and *under tail-coverts*; middle of the lower breast and belly white; wings dark slate-black, except the outer webs of the primaries and the outer wing-coverts, which are edged with rufous-olive; tail dark slate-black. Iris brown; bill black; feet brown. Total length 140 mm.; wing 76; tail 63; tarsus 30.

Adult female. Much like the female of *I. johnstoniæ*, which it resembles on the upper surface; but the tail is brown washed with olive instead of blackish, the chest and breast are brighter and of a more buff-colour, and the under tail-coverts are buff instead of pure white. This last character, as well as the colour of the tail, serve to distinguish the females of the two species at a glance *. Wing 71 mm.; tail 55; tarsus 30.

Mr. Goodfellow has supplied me with the following field-notes on these two species of *Ianthia*. Both were found together, and he was at one time under the impression that the males of *I. goodfellowi* represented the immature male plumage of *I. johnstoniæ*.

"Both species of *Ianthia* are almost entirely ground-birds frequenting the forest trails and fallen tree-trunks, and are of solitary habits. Not until the latter part of March did I see two of these birds together, when they were beginning to nest. They seem to have the same pugnacious character as our English Robin. Two cocks of *I johnstoniæ* allowed me to approach within a yard of them when engaged in battle, and judging by the amount of feathers they left behind, one or both must have been severely punished. Although both sexes seem to prefer the more open parts of the scrub, the male was far more often seen than the female. The call is melodious, but hardly sustained long enough to be described as a song. When once heard it is easily recognised again, even at a long distance. I often came across them searching for insects in damp rocky places."

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* In the plate of *I. johnstoniæ* this character of the white under tail-coverts has been lost sight of, though it is mentioned in the description.

PNOËPYGA FORMOSANA.

Pnoëpyga formosana Ingram, Bull. B.O.C. xxiii. p. 97 (1909).

Mr. Goodfellow was fortunate in securing a small series of this interesting Hill-Wren on Mount Arizan, between 7000 & 8000 ft., in the month of March. The type-specimen, which was presented to the British Museum by Mr. Collingwood Ingram, was obtained in February 1909. There are also three specimens from the same locality in the Tring Museum procured by Alan Owston's collectors.

PROPARUS FORMOSANUS.

Proparus formosanus Ogilvie-Grant; Ogilvie-Grant & La Touche, Ibis, 1907, p. 181; 1908, p. 603.

This Tit-Babbler was discovered by Mr. Goodfellow during his expedition to Mount Morrison, when a single specimen was obtained at 9000 ft. in January 1906. On Arizan he found this species comparatively common at 7000–8000 ft. Among those procured there is a curious partially-white specimen, the forehead and a patch of feathers on the nape being white, and bill and legs pale pink instead of brown. Mr. A. E. Wileman's collection of Arizan birds includes a male shot on the 8th of August, 1908; it does not appear to differ much in plumage from birds killed in February and March, being only a trifle paler.

ACTINODURA MORRISONIANA.

Actinodura morrisoniana Ogilvie-Grant; Ogilvie-Grant & La Touche, Ibis, 1907, p. 185; 1908, p. 604, pl. xii. fig. 2.

Mr. Goodfellow's collection from Arizan includes a large series of both sexes of this handsome *Actinodura* obtained between January and March, but the plumage is alike in all of them.

Among the birds from Arizan presented by Mr. A. E. Wileman there are three pairs killed between the 7th and 15th of August. In two pairs of these the quills of the wing and tail are in full moult; in the third pair the moult has not yet commenced. The plumage of all six does not differ appreciably from that of the series killed in the early part of the year.

SUTHORA MORRISONIANA.

Suthora morrisoniana Ogilvie-Grant; Ogilvie-Grant & La Touche, Ibis, 1907, p. 188; 1908, p. 604, pl. xii. fig. 1.

Mr. Goodfellow procured a second specimen—a female—of this very distinct Crow-Tit, which he killed on Arizan at 8000 ft. in March. There are also three specimens in Mr. Wileman's Collection—a male and two females—likewise killed on Arizan, 7200 ft., on the 7th August, 1908. The specimens collected in August seem to differ slightly from those obtained in January (♂ type) and March in having the sides of the breast and flanks duller and less orange.

BRACHYPTERYX GOODFELLOWI.

Brachypteryx goodfellowi Ogilvie-Grant, Bull. B. O. C. xxix. p. 108 (1912).

This interesting species of Short-wing was obtained by Mr. Goodfellow for the first time during his recent expedition to Arizan, at elevations of from 7000 to 8000 ft. It has been described as follows:—

Adult male and female. Very similar to the *female* of *B. cruralis* (Blyth), but the forehead, lores, and feathers round the eye are olive-brown like the rest of the crown, instead of rust-red; the general colour of the upper parts is dark olive-brown, and the tail is darker with hardly a trace of rufous. The concealed white eyebrow-stripe is well developed, extending from above the lores to the occiput. The under parts are of a rather more olive-brown, and the middle of the breast and belly more distinctly white. Iris brown; bill black; feet brown.

Male. Total length ca. 140 mm.; wing 66; tail 50; tarsus 21.

Female. Total length ca. 140 mm.; wing 62; tail 46; tarsus 19.

The Chinese species, *B. carolinæ* La Touche [*cf.* Bull. B. O. C. viii. p. ix (1898)], also has the plumage of the sexes similar or very nearly so, but it is a much smaller and more brightly-coloured bird, with the middle of the breast and belly white.

Mr. Goodfellow has supplied me with the following note about the finding of this species:—

"This Short-wing was neither seen nor heard before the end of February or early March. It required a great deal of looking for and the exercise of much patience, owing to its habit of concealing itself low down in the thick bamboo-scrub which forms the chief undergrowth in the cypress forests. It was some time after the first specimens were obtained that I was able with certainty to identify this species with a beautiful song which had puzzled me much for some time. Even after I had entirely satisfied myself, doubts existed for some time longer among the Japanese in my camp as to whether the *Brachypteryx* was really the songster. The call-notes of both sexes are full and rich, but the song of the male is well sustained and has a surprising variety of notes; it was heard at almost all hours of the day up to dark. Even the Japanese, whose ideas of music are so very different from ours, waxed quite enthusiastic over it.

"It seems as if this species must either go to the southern end of the island or much lower down the mountains during the extreme winter months, for it is a fact that after February there was quite a sudden influx of them. When returning to the coast, early in April, they appeared to be even more numerous just below the little Government settlement at 6000 ft. than they had been around my camp. Here, for a short time on the march, their song was heard on all sides.

"Although the bird was not rare, it was very difficult to shoot owing to its retiring habits. I have often waited half-an-hour to get a shot at one which had been calling in the bush all around me without once shewing itself. Firing at such close quarters often resulted in a bird too damaged to preserve, and the skin is, moreover, very tender."

DICÆUM FORMOSUM. (Pl. XIII. fig. 1.)

Dicæum formosum Ogilvie-Grant, Bull. B. O. C. xxix. p. 109 (1912).

Dicæum sp., Uchida, Hand-l. Formosan Birds, Annot. Zool. Jap. viii. pt. i. p. 203 (1912).

This handsome little Flower-pecker is represented in Mr. Goodfellow's collection by a single specimen, a male procured on Arizan, 7000 ft., in March. It has been described as follows :—

Adult male. Most nearly allied to *D. luzoniense* O.-Grant, but the scarlet on the chest does not extend on to the breast, the sides of the breast and belly are pale brownish-buff, the flanks are paler olive, and the under tail-coverts pale buff, instead of light cinnamon-yellow. Wing 50 mm.

The head of this specimen has unfortunately been somewhat damaged, but the cheeks are no doubt of a much darker grey than in *D. luzoniense.* A second complete example of this species (sex not recorded) was obtained by Mr. H. J. Elwes in the Arizan district, at about 6000 ft., during his recent visit to Formosa. He has kindly presented this specimen to the Natural History Museum.

The two females mentioned by Mr. S. Uchida (*op. cit.*) are no doubt referable to *D. formosum.*

Mr. Goodfellow remarks :—" This Flower-pecker is evidently rare. The single specimen obtained was shot by one of the savages who was with me. He and others to whom I shewed it did not appear to recognise it."

NUCIFRAGA OWSTONI.

Nucifraga owstoni Ingram, Bull. B. O. C. xxv. p. 86 (1910).

At my request Mr. Goodfellow procured a series of specimens of this Nutcracker, which bear out the characters given by Mr. Ingram. The size of the white spots on the breast varies much in different individuals, but apparently wear has much to do with this: some are spotted down to the belly, in others the markings are confined to the chest.

Mr. Goodfellow tells me:—

"Nutcrackers were quite numerous on Arizan above 6000 ft., especially during February when they were pairing. Shortly after this I think they must have gone to some other locality to nest, for after the middle of March I scarcely saw one. I had hoped to find some of their nests, but in this I was disappointed, neither did I see any young about up to the time I left in April. As we stood on the summit of the mountains whence one commanded a marvellous view over the forest-covered ranges below, it was possible at any time of the day to see quite a number of these Crows circling about below or resting on the very apex of the dead fir-trees which were numerous there, rising like bleached telegraph-poles above the green forests. When crossing the summit in April I failed to see one, although I remained some time on the top.

"These birds are extremely Crow-like in all their ways, and also in the noises they make. The English interpretation of the Japanese name for them is "Star-Crow." They feed on some extremely hard and smooth seeds which I was never able to identify, and their stomachs contained quite as much of the broken up shell as of the kernel."

CALOPHASIS MIKADO.

Calophasis mikado Ogilvie-Grant; Ogilvie-Grant & La Touche, Ibis, 1907, p. 277; 1908, p. 606, pl. xiii. [♂ ♀] & text-fig. 7.

Phasianus mikado Roths. Bull. B. O. C. xxi. p. 22 (1907).

The principal object of Mr. Goodfellow's visit to Formosa in the spring of 1912 was to procure living examples of the Mikado Pheasant. After many difficulties, he eventually succeeded with the aid of the savages in procuring eleven, eight males and three females, all of which were brought back safely to England and are now living and in good condition.

Several of the birds caught in snares killed themselves, and these were made into beautiful cabinet specimens.

Mr. Goodfellow has furnished me with the following notes:—

"I cannot agree with Dr. Moltrecht that the females of this Pheasant are found at a lower altitude than the males. I met with both sexes together, at the same season of the year, at any altitude above 6000 ft. along the Arizan region; below that elevation I do not believe they are to be found. I questioned the savages about this repeatedly, and they all agreed with me that it was so. The Arizan forests slope up from the west, culminating in a sharp razor-backed ridge running north and south for many miles. From about the centre of this, the great bulk of Arizan itself bulges out to the west, ending in huge precipices. Everywhere up to the top the ridge is covered with dense forest, with a still denser undergrowth of scrub-bamboo averaging about 7 ft. high. Above 6000 ft., giant cypress-trees predominate, with many junipers and pines just along the ridge. To the south, where I pitched my first camp, great oaks were quite as numerous as cypresses. On the east side of the ridge facing Mt. Morrison is a very deep valley with remarkably steep sides. In some places it is covered with high grass, and in others with trees. It is on the ledges among the latter that the Mikado Pheasant permanently lives and probably breeds. Almost everywhere it is much too steep for any one to descend very far; were it not so, I should probably have been able to obtain more living birds than I did. Failing this, the only way was to set the snares for catching them along the top, and a little way down the west side of the ridge. In the early mornings and evenings the birds came over the ridge to feed, but descended only a very short distance. If any were flushed they always flew straight up to the ridge and over to the other side, but on two occasions a cock bird alighted in a pine-tree on the top and remained there until the hens had time to get away below. It was very rarely that we saw the birds, for they were very scattered and nowhere numerous. On two occasions I saw a pair, once two hens, and again at another time a cock with two hens. That was the sum total seen during three months. One of the cocks I shot, as I then had a number of living males. On my way to meet Mr. Elwes on his arrival at Arizan I flushed the cock with two hens mentioned above. The latter instantly flew away down the cliffs, but the cock remained behind among the ferns clucking like a hen with chickens. I was accompanied by a savage, and together we went to investigate, and when within a few yards of the spot a fine cock Mikado rose and went right over the cliffs like an arrow. I had a continuous view of him until he alighted in the trees below, and very beautiful he looked with his long white-barred tail; otherwise he appeared quite black on the wing. With the exception mentioned above, all the skins I obtained were those of birds which had died in the snares or had been otherwise injured. I had from the first with much difficulty impressed upon the savages that they were never to shoot Pheasants, as there seemed to be so few in any one district. At first I tried various methods of catching them, but none succeeded; so at last I was forced to depend upon the savages' plan, which was effectual, but at the same time the birds ran a great chance of being seriously damaged. The snares were set for many miles along the ridge and upper part of the forests, several hundreds being put down simultaneously. It was out of the question trying to attract them with grain, raisins, or other food. I tried these at first without any success, and when I secured my first living examples I soon found out the reason. It was most difficult to get the birds to eat grain, one or two being particularly obstinate in this respect. Had it not been for the soft food I had with me, I question if I should have succeeded in keeping some of them alive. As it was none of them died, and with the exception of two which were accidently killed on Arizan all arrived safely in this country. In a wild state (at any rate during the months I was there) they appeared to live almost exclusively on green stuff. I was able to identify the plant, which was growing everywhere, through finding some freshly plucked leaves in the crop of a bird I had skinned; after that I had no further trouble with them until they took to grain. In the crops of one or two I found insects, but during the winter months all insect life was very scarce indeed. A food they must find plentiful at certain seasons is the wild strawberry, which during my stay was mostly in bloom. In the snares set for pheasants were caught Tree-Partridges (*Arboricola crudigularis*), *Columba pulcricollis*, *Trochalopterum morrisonianum*, two Woodcocks, and a monkey.

"The Marten is no doubt the great enemy of the Mikado Pheasant, and probably that is why they are so scarce. These animals were a constant source of trouble to me and frightened my live birds considerably. Night after night they came into the camp in the boldest manner and made sleep impossible. Traps were of no avail, and to shoot them under the circumstances was out of the question, even if one had had the opportunity.

"Both sexes of the Mikado make a loud cheeping noise like young turkeys, especially in the early morning, and when frightened or disturbed the male hisses like a snake. Undoubtedly the skins fade quickly, for already those procured are less bright than they were and not nearly so brilliant as the living birds, which are resplendent. They appear to nest about the end of April, for those I skinned at the beginning of that month were just coming into breeding condition, and one of the hens commenced to lay early in May; the other two being younger birds have not laid this year."

XXXIII.—*On the Immature Dress of* Anser indicus *and* Dendrocycna arborea. By F. E. Blaauw, C.M.Z.S., M.B.O.U.

(Text-figure 13.)

The Barheaded Goose (*Anser indicus*) is not a free breeder in captivity, and I am glad to be able to describe the chick in down and the first feather-dress of this species, from specimens bred in my own Park.

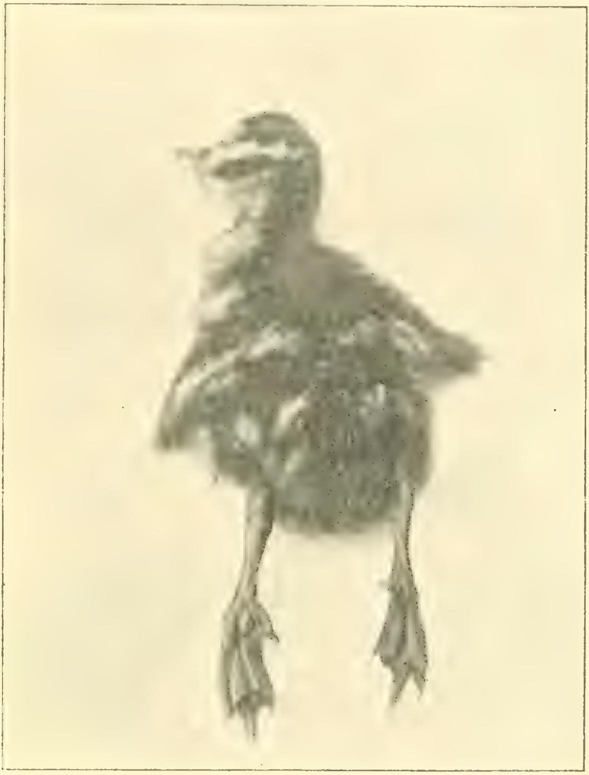
The chick in down is coloured as follows:—Greenish yellow, a dark olive-green transverse spot, shaped like a half moon, on the occiput, where the black bars would be in the adult bird. A dark olive-green longitudinal band with transverse widenings over the back, makes almost the whole of the back dark.

The first plumage is similar to that of the adults, but is duller in colour and differs in the following points:—There are no white edgings to the small wing-coverts nor to the feathers of the sides. The blackish band on the hind-neck runs on nearly, but not quite, to the base of the bill, being separated from it by a whitish front. The blackish band includes the whole of the white zone, which in the adult is marked by the black cross-bars—it is darkest on the occiput. The dark colour includes the eyes, and runs on in front of them slightly lighter, to the base of the bill. The white band, which in the adult descends on each side of the neck into the grey, is wanting and becomes grey, like the rest of the breast. The white of the throat passes gradually into the grey of the breast, and does not end abruptly as in the adults. The legs and bill are yellow, but lighter in the adults, where the colour is more of an orange-yellow.

I had a brood of Tree-Ducks (*Dendrocygna arborea*) in my park, but, owing to the cold weather, they did not survive long. The nest was constructed under a bush at some distance from the water. Five eggs were laid. The chicks were hatched after an incubation of thirty days. The chicks are coloured as follows:—Silvery white on the under side, and black with white spots on the upper side. A darkish grey spot on the fore-neck. The black of the back continues over the hind-neck to almost the base of the bill, being separated from it by a white line, which widens on each side and runs over the eyes. The black zone on the occiput and hind-neck is interrupted by a white band which begins at the base of the bill on each side, and runs under the eyes right round the head. (See text-fig. 13, p. 659.)

This circular marking seems to be characteristic of the young in down of the genus *Dendrocycna*, and has been found by me in all the chicks of the different species of the genus that I have seen. Under this white circular line the black of the hind-neck sends a black line forward on each side of the head. Legs and bill dark olive-green.

Text-fig. 13.



Chick of *Dendrocycna arborea.*

XXXIV.—*Obituary.*

Dr. W. Blasius and Mr. Allan O. Hume.

Dr. Wilhelm Blasius.

Wilhelm Blasius was born at Brunswick on July the 5th, 1845—the second son of Heinrich Blasius, Director of the Ducal Museum of Natural History, who was well-known to all Naturalists by his book on the Mammals of Europe. Like his brother Rudolph, whose name is also familiar to us, Wilhelm studied medicine at Göttingen, Würzburg, and Zürich, and became a Doctor of Medicine in 1868. In 1869 and 1870 he was lecturer at the University of Würzburg. He joined the German army, as military physician, during the Franco-German War in 1870–71, and was awarded the Order of the Iron Cross for his excellent services. On the sudden death of his father in April 1871, Wilhelm Blasius was selected by the Ducal government as his successor in several positions. In addition to his chief duty as Professor of Botany and Keeper of the Botanical Gardens, Wilhelm lectured on Zoology, and became Director of the Ducal Museum of Natural History, which had been joined with the Ducal technological high school (Carolina Wilhelmina), although the latter required only Botany for the education of pharmacists. On account of so many official duties, Wilhelm Blasius had little spare time for literary work, still he published many good scientific papers, most of them dealing with Ornithology, and chiefly on the Birds of the Malay Archipelago (Celebes, Borneo, Palawan, etc.), mainly collected by Dr. Platen (for A. Nehrkorn of Braunschweig). Amongst these were examples of a number of new species, the names of which, however, having been partially published in a local newspaper, lost their priority. The chief paper of Blasius was his Monograph of *Alca impennis* in the 'Neue Naumann'. Beside Ornithology Blasius worked a good deal in Archaeology and Palaeontology, in the latter as Director of the excavations in the celebrated stalactite cave of Rübeland (Harz Mountains). He also published many articles of a more local character. In fact he had astonishing working powers, unfortunately rather too much distributed. Distinguished by the title of "Geheimer Hofrat," Wilhelm Blasius was also honoured with the membership of many scientific societies. In 1892 the University of Padua elected him a *Doctor philosophiæ*. For many years he belonged to the committee of the "Deutsche Ornithologen Gesellschaft"; in 1904 he was made a Foreign Member of the B. O. U.; he was also Corresponding Member of the Zoological Society of London. All who knew him, and he had many good friends, will deplore his death, as he was much beloved by his relatives and had a large circle of acquaintances.

Braunschweig, July 1912. O. F.

Mr. Allan Octavian Hume, C.B.

Better known to the world in general, perhaps, as a somewhat eccentric politician than as a Naturalist, Allan Hume deserves ample recognition as the donor of one of the most important gifts ever made to our National Museum of Natural History.

He was born in June 1829, one of the six children of Joseph Hume, the well-known radical M.P. of former days, commonly called "Joey Hume." At the age of twenty young Hume passed out of the East India College at Haileybury into the Indian Civil Service, and was sent off to the North-West Provinces. His merits were quickly detected, and when the great mutiny broke out we find him acting as Collector of Etawah, between Agra and Cawnpore. After a hard struggle with the mutineers, it was found necessary to abandon the head-quarters and much fighting ensued, but the district was ultimately pacified, and Hume returned to Etawah, and retained his post there for the next ten years. His conduct throughout this period was highly approved of, and was rewarded by the C.B. in 1862. After this Hume filled various high posts in the Home, Revenue, and Agricultural Departments of the Indian Service at Simla, which we need not specify. But what has been called the "impress of his vigorous personality" brought him into conflict with a member of the Government, in which affair he is said to have been in the wrong. He returned to the North-West Provinces, in 1870, as a Member of the Board of Revenue, and in 1882 retired from the Indian Service.

During his long career in the East, Hume, with the assistance of many willing correspondents and friends, had made an enormous collection of birds from every part of the Indian Dominions, and stored them in his home at Simla, in an apartment specially designed for the purpose. He had intended to publish a complete work on the Indian Avifauna, when an unfortunate accident at Simla in 1885 destroyed his MS., then nearly complete. Naturally disgusted with the prospect of having to rewrite such a work, and full of engagements of another sort, Hume now determined to offer his whole collection of Birds to the Natural History Museum at South Kensington. It might have been supposed that such an offer would be rapturously accepted, and that immediate arrangements would have been made for the transfer of the collection to London. But the authorities of the Museum did not see the matter in that light, and we believe that it took nearly two years of negotiations before Dr. Bowdler Sharpe, then head of the Bird-department, was deputed to go out to India to fetch home the present, and the *magnificent* sum of £300 was put down in the estimates for that purpose. In 'The Ibis' for 1885 (p. 456) will be found a lively account by Bowdler Sharpe himself of his journey to Simla and his successful return to England with 62,000 bird-skins and 19,000 eggs, besides books and other articles.

Commencing in 1867, a large series of Notes and Papers from Hume, all relating to Indian Birds, will be found in the pages of this journal, the last being dated in 1881. But subsequently Hume appears to have lost all his interest in Ornithology, though he was an occasional visitor to the Bird-room at South Kensington. He turned to Botany, and made a very large collection of British Plants, which he left to the South London Botanical Institute, founded and endowed by himself.

Hume died at his own house, The Chalet, Kingswood Road, Upper Norwood, at the age of 82.

The following are the titles of his principal separate works on Birds :—

1869–1870. My Scrap-Book, or Rough Notes on Indian Oology and Ornithology.
1873–1875. Nests and Eggs of Indian Birds.
1874. The Indian Ornithological Collector's Vade Mecum.
1878. A revised List of the Birds of Tenasserim. With W. Davison.
1879. A rough tentative List of the Birds of India.
1879–1880. The Game Birds of India, Burmah, and Ceylon. With C. H. T. Marshall.

Besides these and his numerous papers in 'The Ibis,' Hume was Editor of (and principal writer in) an Ornithological Journal called 'Stray Feathers.' Of this eleven volumes were published at Calcutta, 1873–1899, to which a twelfth volume and General Index were added by Mr. C. Chubb in 1899.

XXXV.—*Notices of recent Ornithological Publications.*

[Continued from p. 552.]

89. '*The Auk.*'

[The Auk. A Quarterly Journal of Ornithology. Vol. xxix. Nos. 1, 2, 3 (January to July, 1912).]

In these numbers we may first mention two papers of considerable importance as regards Nomenclature. Mr. W. Stone discusses "Vroeg's Catalogue" and decides that it hardly falls within the binomial system, though he considers that the 'Adumbratiunculæ' attributed to Pallas, and now known to be attached to three copies of the "Catalogue," stand on a different footing. Mr. Rhoads adds to Dr. Richmond's list of papers by Rafinesque ('Auk,' 1909) two from the 'Kentucky Gazette,' representing his best work. If such publication is to be accepted, the genus *Hydrochelidon* would become *Chlidornis,* and *Hirundo lunifrons* would stand as *H. albifrons.*

Mr. W. Brewster writes on the gliding flight of Gulls, which he is inclined to attribute to the action of the wind against the terminal portion of the remiges, adjusted and readjusted by the birds in conjunction with movements of the body: Dr. Townsend discusses the Genealogy of Birds, as evidenced by their methods of progression in water, in the air and on land; Mr. S. Trotter has a paper on the Relation of Genera to Faunal Areas; Mr. H. W. Wright comments on the regularity of birds' evening and morning songs: while Mr. Brewster is again to the fore with Notes written by the late F. Bolles on the habits of Whip-Poor-Wills and Owls. Mr. J. T. Nichols writes on "Recognition Marks" in certain species, but does not seem to have much that is new to tell us; and Mr. McAtee's subsequent paper may be taken as a criticism of his views. We do not quite understand Dr. Bishop's standpoint in his article on the Bird-markets of Southern Europe. He certainly deplores the destruction of so many species in the South, but seems to imply that birds are not necessarily extirpated by such destruction. He instances the taking of eggs at Flamborough and the shooting of Woodpigeons in England, but surely he must know that the Flamborough climbers are very careful in managing their "preserves," and that the Woodpigeons shot are mainly foreign (and harmful) invaders.

As regards distribution, Dr. Townsend writes of St. John Valley in New Brunswick, Mr. Iseley of Sedgwick County, Kansas, Mr. Arnold of Newfoundland, Mr. Bailey of the mountains of Virginia, Messrs. Bruner and Feild of those of West Carolina, Dr. Bergtold of the Gila River, New Mexico; but these papers are of much less interest than that of Mr. Rhoads on the 'Paramo' of Central Ecuador, and the species found from the upper limits of trees to the snow-line, including *Oreotrochilus pichincha* and *Rhamphomicron stanleyi.* Dr. Wheeler also has much to tell us of the birds found to the north of the Great Slave Lake round Fort Enterprise.

Dr. Bishop describes a new subspecies of the Red-shouldered Hawk (*Buteo lineatus texanus*), Mr. Boys another of the Ruffed Grouse (*Bonasa umbellus thayeri*); Mr. Ginnell makes a new species of the so-called "Hawaiian Linnet" (as *Carpodacus mutans*), though Mr. Phillips states that the change in the males from red to yellow or orange is an insufficient reason for giving it a new name. Further articles on single species are those on *Telespiza cantans* and its pterylosis by Mr. H. L. Clark, on the Carolina Paroquet by Mr. Wright, on the Black Duck and its allies by Dr. Townsend and Mr. Phillips, on his eggs of the Great Auk by Mr. Thayer, on the Sage Thrasher by Mr. Kennedy and Palmer's Thrasher by Mr. Stafford, on the Passenger Pigeon by Mr. Hodge (no certain records of late), on *Pisobia minutilla* by Mr. Moore, and on *Phaethon americanus* by Mr. Gross. The last two papers are of considerable value and describe the habits of the birds in the Magdalen Islands and the Bermudas respectively, with the addition of good illustrations of the young. Mr. Phillips has also written on American Black Ducks in general, and Mr. Bryan on the Canary's acclimatization on Midway Island, Hawaiian group.

Lastly, we must draw attention to the account of the 29th Meeting of the A. O. U. by Mr. Sage; and more particularly to the XVIth Supplement to the A. O. U. List of Birds; while Obituary Notices are given of Mr. H. A. Purdie (an original member) and of Prof. Whitman.

90. '*Avicultural Magazine.*'

[Avicultural Magazine. Third Series. Vol. iii. Nos. 8–10 (June–Aug., 1912).]

The regular notes of Mr. Seth Smith on the Zoological Gardens are perhaps the chief items in these numbers; they record the acquisition of a rare and beautiful Lory, *Calliptilus solitarius* (brought by Dr. Bahr), of the King's Nepaulese Collection, and of another Collection presented by the Government of the Federated Malay States. They also mention the breeding of *Tribonyx ventralis*, *Geocichla* *cyanonotus*, Rufous and Martineta Tinamous, and Wild Turkeys, and the arrival of the first living example of *Balæniceps rex* brought to Europe since 1860. Hemprich's Gull has reared young in the Gardens, and the living chicks prove quite unexpectedly to be nearly uniform buffish white in colour.

In these numbers also Mr. Finn gives a good resumé of the facts concerning sexual selection, and Mr. Staples Browne continues his notes on Birds seen on the White Nile. The other papers are of a more purely avicultural character, among which we may notice that Mr. Teschemaker has bred the Crested Lark in confinement.

91. *Chapman on apparently new Colombian Birds.*

[Diagnoses of apparently new Colombian Birds. By Frank M. Chapman. Bull. Amer. Mus. N. H. xxxi. pp. 139–166.]

In November 1910 the American Museum of Natural History sent out a taxidermist with instructions to make collections on the western slope of the Western Andes, from the port of Buenaventura to San Antonio at the summit of the pass which leads to Cali in the Cauca Valley. In the following year Mr. Chapman and other Collectors joined the party, and the result was a series of 5058 bird-skins from this little-known district, the more remarkable of which are described in the present paper. The species and subspecies believed to be new are the following:—

Crypturus soui caucæ, *Chamæpetes sanctæ-marthæ*, *Leptoptila verreauxi occidentalis*, *Pionopsitta fuertesi*, *Capito maculicoronatus rubrilateralis*, *Veniliornis nigriceps equifasciatus*, *Rhamphocænus rufiventris griseo-dorsalis*, *Drymophila caudata striaticeps*, *Formicarius rufipectus carrikeri*, *Grallaria milleri*, *G. alleni*, *Upucerthia excelsior columbiana*, *Synallaxis gularis rufipectus*, *S. g. cinereiventris*, *Picolaptes lacrymiger sanctæ-marthæ*, *Knipolegus columbianus*, *Muscisaxicola alpina columbiana*, *Tyranniscus chrysops minimus*, *T. nigricapillus flavimentum*, *Platypsaris homochrous canescens*, *Attila fuscicauda*, *Rupicola peruviana aurea*, *Phæoprogne tapera immaculata*, *Troglodytes solstitialis pallidipectus, Thryophilus nigricapillus connectens, Cinnicerthia olivascens infasciata, Planesticus fuscobrunneus, Vireosylva chivi caucæ, Basileuterus richardsoni, Spinus nigricauda, Ammodramus savannarum caucæ, Myospiza manimbe colombiana, Atlapetes flaviceps, Cyanocompsa cyanea caucæ, Diglossa cryptorhis, D. gloriosissima, Sporothraupis cyanocephala margarita,* and *Chlorospingus albitempora nigriceps.*

A good map shewing the routes of the Collectors in Western Colombia is added.

Mr. Chapman has in preparation a detailed report upon the Birds, "with special reference to their distribution as it is controlled by altitude." This will be of great interest. We hope also that on the same occasion he will explain the difference between his "species" and subspecies!

92. *Clyde-Todd on new South-American Birds.*

[Descriptions of seventeen new Neotropical Birds. By W. E. Clyde-Todd. Ann. Carnegie Mus. viii. No. 2, 1912.]

The Carnegie Museum at Pittsburg, U.S.A., has recently acquired more than six thousand specimens of birds from South America, collected in various localities in Venezuela, Colombia, and Eastern Bolivia, and all apparently labelled with exact dates and localities. Mr. Clyde-Todd proposes to publish full lists of them, as rapidly as circumstances permit, accompanied by field-notes and critical observations. In the present paper he describes seventeen new forms, namely :—*Arremonops tucuensis* (Venezuela) ; *Spermophila haplochroma* (Santa Marta) ; *Saltator orenocensis rufescens* (Colombia); *Tangara guttata trinitatis* (Venezuela); *Tangara guttata eusticta* (Costa Rica) ; *Schistochlamys atra aterrima* (Venezuela) ; *Compsothlypis pitiayumi elegans* (Venezuela) ; *Pheugopedius macrurus annectens* (Venezuela); *Troglodytes solitarius* (Venezuela); *Craspedoprion intermedius* (Venezuela) ; *Myiobius modestus* (Venezuela) ; *Myiochanes ardesiacus polioptilus* (Venezuela) ; *Myiodynastes chrysocephalus cinerascens* (Venezuela) ; *Machetornis rixosa flavi-*

gularis (Venezuela); *Euchlornis aureipectus festiva* (Venezuela); *Piaya rutila panamensis* (Panama); *Penelope colombiana* (Santa Marta).

It is impossible to criticize work of this kind without access to the original specimens, but we may be allowed to say that some of the new "subspecies" seem to be based on rather slender characters.

93. *Gladstone on the Vertebrates of Dumfriesshire.*

A Catalogue of the Vertebrate Fauna of Dumfriesshire. By Hugh S. Gladstone. Dumfries: J. Maxwell & Son, 1912; pp. i–xiv, 1–80, map.]

The bird-portion is an epitome of the author's 'Birds of Dumfriesshire' (*cf.* 'Ibis,' 1911, p. 169; 1912, p. 344). There is an appropriate Introduction and a good map of the county.

94. *Hartert on Palæarctic Birds.*

[Die Vögel der paläarktischen Fauna. Systematische Uebersicht der in Europa, Nord-Asien und der Mittelmeerregion vorkommenden Vögel. Von Dr. Ernst Hartert. Vol. 2. Heft vii. Berlin: Friedländer u. Sohn. 1912.]

We explained so fully the nature and object of this important work in our notice of the first volume*, that it is hardly necessary to say much more about this part of the subject on the present occasion, when the commencement of the second volume is before us. Having finished his account of the mighty army of Passeres of the Palæarctic Region, Dr. Hartert now proceeds to the Cypseli, which he elevates to the rank of an Order. We are sorry to see that, although he uses derivatives of *Cypselus* for the Order and Family, he continues to employ "*Apus*" for the generic name—a term almost universally used in another branch of Zoology.

The "Caprimulgi" naturally follow the "Cypseli" and are likewise granted the rank of an "Order." They are feebly represented in the Palæarctic Ornis by a few species of the typical genus. The "Meropes," "Upupæ," "Coraciæ," and "Halcyones," which, according to the author's views, should also be treated as "Orders," continue the series, which is concluded by the Pici and Cuculi. We are not sure that much is gained by dividing the Picariæ of Nitzsch into so many constituent parts, but it is obvious that these eight groups are all distinguished by well-marked characters.

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* 'Ibis,' 1910, p. 746.

Whatever may be thought of Dr. Hartert's nomenclature and system of arrangement, the students of Palæarctic Bird-life will find an enormous amount of information recorded in this work, and should not fail to give it close attention.

95. *Headley on the Flight of Birds.*

[The Flight of Birds. By F. W. Headley. London: Witherby & Co., 1912; pp. i–x, 1–163.]

In these days of Aviation, the subject of a bird's flight is one of more than usual interest, and Mr. Headley, in the book before us, gives us an admirably clear and at the same time concise account of the whole matter from all points of view, comparing at the same time the powers of wingless man and winged fowl. He endeavours to avoid all excess of technicalities, and illustrates his meaning by the aid of photographs and diagrams.

The mathematical details are naturally of primary importance and of the highest interest, while the author has discussed them in a manner suited to the general public. These cannot be adequately treated in an Ornithological journal, but all our members should make themselves acquainted with the mechanics of flight, the methods adopted by the bird, and how its structure and plumage is in perfect accord with its needs.

Mr. Headley first calls our attention to the fact that for successful flight perpetual forward motion is necessary into undisturbed fields of air: otherwise the resistance of the air would not be sufficient, and it is the vertical component of this resistance (which acts perpendicularly to the surface exposed to it) that is the sole force sustaining and uplifting the body, so far as it is heavier than air. Experiments have to be made by aeronauts as to what pace, what surface area, and what curve of the wings gives the best results for their machines; but with a bird the case is different, as it can change its position without fear of a fall, can suit the curvature of its wings to varying circumstances, and can allow the air to pass through its wing-feathers and so reduce the pressure at any given moment. The air too can uplift the tips of the primaries of its own accord.

The bird in fact loses and regains its equilibrium, but the flying man must never lose it. Birds have various ways of righting themselves, by making a more powerful stroke with one wing than the other, by inclining the body, by uplifting the wings, or by using their legs and tails. When Mr. Headley, however, instances a skater's turn of the head without loss of equilibrium, he might have stated that the head and shoulders of the skater are used to alter his direction and change his edge; similarly the bird by a turn of the head need not lose its equilibrium, it is true, but may also wish to suddenly alter its course.

After a study of the laws of flight and so forth, the author discusses motive power in a bird, the bones and muscles utilized, the structure of feathers, and all that is necessary to a full understanding of the matter. Here he has little that is new to tell us that may not be learned in anatomical or other text-books, but, as a summary, his pages will be found of the greatest use to those not versed in the subject.

The final chapters on varieties of wing and flight, on pace and lasting power, and on the effect of the wind, will perhaps be to some as interesting as any in the book, including as they do the much vexed question of the rate at which birds can fly, on migration and at ordinary times.

96. *Horsbrugh and Davies on South-African Game-birds.*

[The Game-birds and Water-fowl of South Africa. By Major Boyd Horsbrugh, with coloured plates by Sergeant C. G. Davies. Part 1. Witherby & Co., March 1912.]

This is a very pleasing book. The drawings of Sergeant Davies are capital, while the letterpress, by the well-known authority on the Birds of Capeland, Major Horsbrugh, are excellent. The first ten plates are devoted to the Bustards (*Otididæ*), a very prominent group in South Africa. These are followed by the two Thicknees and the Snipes, and a Francolin concludes the present number.

97. '*Irish Naturalist.*'

[The Irish Naturalist. A Monthly Journal of General Irish Natural History. Vol. xxi. Nos. 3–7 (March–July, 1912).]

In the March number Professor Patten of Sheffield recorded as obtained at the Tuskar Rock three birds, which he considered to be new to the Irish list, namely, *Motacilla flava*, *Acrocephalus streperus*, and *Alauda cantarella*. He hopes to make a continuous study of Bird-migration at various Irish Lighthouses, and that his stay at the Tuskar may only be the first of such visits. In the April number he admits that the Reed Warbler had been twice obtained previously, and Dr. Barrington expresses doubt as to the identification of the other birds. In the July number Professor Patten writes on the White Wagtail and the Wren at the Tuskar.

Pastor Lindner gives a supplementary note on "Luminous Birds," and suggests that the luminosity may be due to a local micro-organism (alga). Mr. Delap writes on a north-westerly autumn migration of Swallows at Rosslare, and Dr. Barrington follows with a note to call attention to its importance.

98. *Italian Review of Ornithology.*

[Revista Italiana di Ornitologia. Anno I., Nr. 1–2. Bologna, 1912.]

It is pleasant to record the foundation of a new periodical devoted to Ornithology, as we now do under the heading given above. It is also pleasant to see several well-known names among those of the Editors and Contributors. Our old friend Count Salvadori writes on the much vexed question of *Saxicola stapazina* and its allied forms: he is not inclined to admit the specific identity of the black-throated and white-throated birds. Dr. E. Arrigoni degli Oddi and Dr. G. Damiani give us an excellent account of the birds of the

Tuscan Archipelago, containing notes on ninety species; and Dr. Balducci records on unquestionable evidence the occurrence of an adult female of *Pelecanus crispus* in Italy.

A good feature in the new journal is the summary of the contents of all the other principal ornithological journals, which appears to be carefully composed, and, if continued regularly, is likely to be of much service to the working ornithologist.

99. *Kloss and Robinson on Malayan Birds.*

In Nos. 3 & 4 (1911) of the 'Journal of the Federated Malay States Museums' will be found several short papers by Mr. Kloss and Mr. Robinson relating to the animals of the Malay Peninsula, which they are busily engaged in exploring. Mr. Kloss writes on his Zoological investigation of the Trengganu Archipelago, where mammals were many but birds were few. He has also made a short visit to the hills of Negri Sembilan and obtained a series of 86 species of birds, amongst which are two specimens of *Eupetes macrocercus*. The same author gives an account of some new or rare species recently received—*Syrnium maingayi* and *Pycnonotus robinsoni*; while Mr. Robinson describes a small collection from the mountains of Ulu Langat in Selangor, in which are specimens of the beautiful Broad-bill *Serilophus rothschildi*, and records the occurrence in North Perak of a new "local race" of *Bubo coromandus*, which he proposes to name *B. c. klossi*.

100. *Lucas and Le Souëf on the Birds of Australia.*

[The Birds of Australia. By A. B. S. Lucas and W. H. Dudley Le Souëf, M.B.O.U. Melbourne; October, 1911. 490 pp.]

This will be a useful book to those who cannot afford to subscribe to Mr. Mathews' great work (now being issued in "Two-guinea Parts") on the same subject, and many of our friends, we fear, will be in that class. It is a complementary volume to "The Animals of Australia—Mammals, Reptiles and Amphibians" of the same authors and publishers. The classification adopted is that of Sharpe's Hand-list of Birds, and begins, like that work, with the lower forms of Bird-life. The authors have been obliged to concentrate their work, in order to get the large store of information that we now possess on this favourite subject within the limits of a single volume. In doing this we think that they have acted wisely. Abjuring synonyms altogether they give only the English and scientific names of each species, descriptions of both sexes, and a short account of the geographical range. Useful "keys to the species" are added, where required, with many general remarks on all the better known groups and their ways of life.

The volume is rendered still more valuable by a large number of illustrations, mostly taken from photographs, some of which are excellent, but others are perhaps hardly up to the mark.

101. *Mathews on Australian Birds.*

[The Birds of Australia. By Gregory M. Mathews. London, 4to. Vol. I., pt. 6, Contents, Preface, Index; Vol. II., pts. 1, 2. (January, May, July, 1912.)]

These parts of Mr. Mathews' work include the majority of the Australian Procellariiformes or Petrels; and—apart from the excellence of the plates and the life-histories of the birds, where they are known—are of great importance to all who are interested in the correct identification of the members of this admittedly difficult group.

In the first place, the author has been fortunate enough to rediscover at the British Museum the original manuscript of Dr. Solander, which had probably last been seen by G. R. Gray in 1871. The value of this discovery can hardly be overestimated, for Solander accompanied Sir Joseph Banks as zoologist and botanist on Capt. Cook's first voyage, and gave beautifully clear Latin diagnoses of the birds met with, apparently from fresh examples. Mr. Mathews now gives us exact copies of all these diagnoses, and thus enables us to make up our minds on many doubtful points and to check the work of later authors. But this is not the only boon that he has conferred on workers at the group. He proceeds to review the authorities on the Order from the earliest monograph by Latham to the latest by Dr. Godman, and to shew the connexion of Latham's descriptions with the Banksian drawings and J. R. Forster's work, which is the more necessary as the former does not seem to have had access to Solander's notes. Moreover he reprints the original descriptions of the majority of the species, gives us his opinions on the various drawings by Banks' artists, and his decisions on the proper names of the forms—in which we may coincide or not as we choose.

Mr. Mathews has derived great assistance from the collections in the British Museum, at Tring, and elsewhere, but still thinks that further material is needed from the breeding-grounds of the species: his view—different to that of most writers—being that they do not wander so far as has been supposed, and that forms now considered identical may prove different, when a long series is available.

To begin with Vol. ii. pt. 1:—Four divisions of the Order are accepted, as in Salvin's volume of the British Museum Catalogue, and in Dr. Godman's Monograph; but the Family name Procellariidæ is changed to *Hydrobatidæ*, and Puffinidæ to *Procellariidæ*.

As regards genera, *Garrodia* and *Pealea* are included under *Oceanites*, while *Procellaria* is taken to contain *Majaqueus* and *Priofinus*: if *Fregetta grallaria* (of Vieillot *ex* Peron) is kept separate the title *Fregettornis* is proposed for it; and in like manner *Nesofregetta* for *F. mœstissima* of Salvin and *F. albigularis* of Finsch.

A new species propounded is *Puffinus couesi*, for *P. opisthomelas* auct., not of Coues; and the following subspecies are differentiated: *Oceanites oceanicus exasperatus* (Pacific form); *Pelagodroma marina dulciæ* (West Australian seas), *P. m. howei* (East Australian seas), and *P. m. maoriana* (New Zealand). No less than twenty pages are devoted to *Puffinus assimilis* and its subspecies, which are distinguished as blue-black and brown-black forms. Here two new subspecies are proposed, *P. a. kempi*, *P. a. tunneyi*. Other new subspecies are *P. l'herminieri boydi*, *P. l. becki*, *P. reinholdi reinholdi* (=*P. gavia* auct. *nec* Forst.), *P. r. huttoni*, *P. pacificus alleni*, *P. p. laysani*, *P. p. royanus*, *P. carneipes hullianus*, *P. c. hakodate*; while *Procellaria æquinoctialis conspicillata* is differentiated from the type species and from the new *P. æ. brabournei*, *P. æ. mixta*, and *P. æ. steadi*. *Fregetta grallaria grallaria* of Australian waters is clearly distinguished from *F. g. segethi* of Western S. America, and both of these from *F. leucogaster* and *F. tubulata* (now named from Gould's label).

Again, *Puffinus carbonarius* of Solander is tentatively attributed to a New Zealand breeding species; but the exact distribution and value of all the forms accepted must be studied by each ornithologist for himself. *Puffinus gavia* of Forster is made a subspecies of *P. assimilis* and attributed to New Zealand, while *P. pacificus* of Gmelin is identified with *P. chlororhynchus iredalei* Mathews, from the Kermadec Islands, so that Mathews' name must give way to Gmelin's.

In the second part of the volume the letterpress is of a similar and equally important nature, and new subspecies are as plentiful as before.

Priocella antarctica is shown to antedate *P. glacialoides*, while research proves that *Pterodroma* similarly antedates *Œstrelata*. This genus cannot be combined with *Puffinus* on account of the difference in the bill of young birds, whereof cuts are given in explanation. Attention is specially drawn to the late discovery of a subspecies of *Pterodroma macroptera* breeding in West Australia; it was recorded by the author from Rabbit Island and named *P. m. albani*. The doubtful *Procellaria phillipsi* of Gray is now identified with *P. melanopus* of Gmelin and *P. solandri* of Gould, and proves to be identical with the supposed new subspecies *montana* of Basset Hull, who has submitted his bird for comparison. That is, the species inhabits Lord Howe Island and possibly still Norfolk Island. Typical *P. cooki* is doubtfully included in the work, but *P. c. leucoptera* is figured from one of Gould's Cabbage Tree Island examples. *P. mollis* is struck off the Australian list for the present, but is given in this part, as the plate was drawn some time ago. *Pagodroma nivea* is also included, though not Australian, in order to separate a larger form from Cape Adare as *P. confusa*, sp. n.

The genus *Prion* is subdivided into *Prion*, *Pseudoprion* of Coues, and *Heteroprion*, gen. nov., as the bill is much broader in some species than others (see woodcuts). The difference of the bill in *Pelecanoides* and "*Puffinuria*" of Lesson is also shown by a figure.

Other new species or subspecies proposed are *Macronectes giganteus solanderi* (Falkland Is.), *M. g. halli* (Kerguelen Is.), *M. g. wilsoni* (Ross Sea), *M. g. forsteri* (Valparaiso), *Prion vittatus macgillivrayi* (St. Paul's, Indian Ocean), *P. v. keyteli* (Tristan da Cunha), *P. v. salvini* (Crozets), *P. v. missus* (West Australia), *P. v. gouldi* (Australia), *Pseudoprion turtur catoni* (Kerguelen I.), *P. t. solanderi* (west coast of S. America), *P. t. huttoni* (Chatham Is.), *P. t. crassirostris* (Bounty I.), *Heteroprion belcheri* (Victoria), *H. desolatus mattingleyi* (E. Australia), *H. d. peringueyi* (Cape Seas), *H. d. macquariensis* (Macquarie I.), *H. d. alter* (Auckland Is.); while *Macronectes* (*Ossifraga*) *giganteus albus* (New Zealand) of Potts is accepted.

102. *Ridgway on the Birds of North and Middle America.*

[The Birds of North and Middle America. By Robert Ridgway. Part V. Washington, 1911.]

In January 1908 we noticed the issue of the fourth part of Mr. Ridgway's important work [*], and now we have the fifth part before us, its earlier publication having been somewhat delayed by his visit to Costa Rica and, we regret to say, by 'occasional periods of illness.'

The present volume contains Mr. Ridgway's account of the Tracheophonine Mesomyodians of North and Middle America met with within his limits, and embraces representatives of the four families, Pteroptochidæ, Formicariidæ, Furnariidæ, and Dendrocolaptidæ. It also contains the

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[*] See 'Ibis,' 1908, p. 190.

Macrochires (Trochilidæ and Cypselidæ) and the Heterodactylæ, which are represented, within the limits of the work, only by the Trogons.

The number of species and subspecies described in the volumes now out is 2038. From 1150 to 1200 forms remain to be treated in subsequent parts of the work.

In the general treatment of his subject Mr. Ridgway pursues exactly the same plan as in his four previous volumes. As our readers are well aware, we differ from him in many points as regards our observance of the rules of nomenclature, but we cannot withhold our admiration of the skill and energy which he has devoted to his arduous task.

103. *Salvadori on a new Parrot.*

[Nuova specie del genere *Tanygnathus*, descritta da T. Salvadori. Ann. Mus. Civ. St. Nat. Genova, ser. 3, vol. v. (1912).]

Count Salvadori bases his new species on a single specimen in the Civic Museum of Genoa, and calls it *Tanygnathus heterurus*. The locality is not known. It has some resemblance to *T. everetti*.

104. *Sassi on a new Owl.*

[Eine neue Ohreule aus Zentralafrika. Von Dr. Moritz Sassi. Sitz. Ak. Wiss. Wien, Mai 2, 1912.]

Dr. Sassi describes a new subspecies of Owl, of which an example has been obtained by Herr Grauer on the western coast of Lake Tanganyika, as *Asio abessinicus graueri*.

105. *Sclater on the Birds of Colorado.*

[A History of the Birds of Colorado. By William Lutley Sclater. London: Witherby & Co., 1912; pp. i–xxiv, 1–576, 17 pls. and map.]

This excellent and comprehensive work on the Birds of one of the United States is founded on a collection formed by Mr. C. E. Aiken of Colorado Springs, and presented to Colorado College by the late General W. J. Palmer, to whom the book is dedicated. Other collections and other authorities have been laid under contribution to make the volume as complete as possible, and the result is a work which can be recommended to our readers as an admirable compendium of our knowledge of a part of the country which includes much of the Rocky Mountains. It will also be useful to dwellers in America as a reliable manual of the Ornithology of a State, which has only been treated hitherto by W. W. Cooke, from a somewhat different point of view.

Mr. Sclater is evidently anxious that his book should be in the hands of all local naturalists, and he gives for their use Keys to the Orders, Families, Genera and Species, which are arranged and named as in the A. O. U. Check-list. Another feature consists in the paragraphs of references to local works on the Avifauna, while full descriptions of the Birds and short but sufficient notes on their habits follow in due course.

The physical features of Colorado with its lofty mountains, its cañons, prairies and great upland "parks," are described in an interesting Introduction, which proceeds to an analysis of the Bird-fauna as compared with that of other regions. 392 species are recognised, divided into 225 regular breeders, resident or otherwise, and 117 non-breeders. Full lists are given under each category, and an attempt is made to delineate their vertical distribution.

Three species which breed regularly above the timber-line are of especial interest: *Leucosticte australis*, *Anthus rubescens*, and *Lagopus leucurus*; while many of the photographs help us to realize the details in the letterpress. The articles dealing with the Ducks and Grouse may be mentioned in particular, as also those on the Wild Turkey and on the habits of the Least Bittern. The spread of the English Sparrow and the curious distribution of the Magpie should also be noted.

106. '*The Scottish Naturalist.*'

[The Scottish Naturalist. A Monthly Magazine devoted to Zoology. Nos. 6, 7 (June, July, 1912).]

In the first of these numbers Dr. Harvie-Brown, whom we congratulate on his well-deserved Honorary Degree, continues his exhaustive memoir on the Fulmar in the British Isles. He gives a corrected map, as previously promised, based upon extended information, and traces the bird as it has gradually enlarged its range from the north of the Scottish mainland to Berriedale in Caithness on the east coast and the Hebrides on the west. He has also much to tell us of the Fulmar's increase on St. Kilda since the natives have used it less for food, and finishes by furnishing details of its discovery by Mr. Ussher and others in Ireland during the last few years.

In the July number we have the first Interim Report of the Aberdeen Bird-Migration Inquiry. Mr. Thomson gives an outline of the method of "ringing" employed, and a description of the schedules sent out. All British birds are at present within the scope of the Inquiry, while it has been very wisely determined to attempt no conclusions at present. A Guillemot and a Herring Gull have been traced from Aberdeen to Sweden and Denmark respectively.

107. *Swarth on the Birds of Alaska.*

[Birds and Mammals of the 1909 Alexander Alaska Expedition. By Harry S. Swarth. Univ. of Calif. Publ., Zool. vol. vii. No. 2. Berkeley, 1911.]

This is a report on the results of a second zoological expedition to Alaska "organized and financed" by Miss Annie M. Alexander in the spring of 1911, the party consisting of Mr. Allen E. Hasselborg, who attended to the Mammals, and Mr. Swarth, who devoted himself to the Birds. The Sitkan district of Alaska, or, at least, the parts of that territory not examined by the first expedition of 1907, were selected as the principal scene of action. An exact list of the localities visited is given, which is further illustrated by a description of each of them and by a map of the country traversed.

The ornithological material collected during the expedition consisted of 604 birdskins, which are referred to 137 species (or subspecies) of the American Check-list. These specimens, together with the accompanying field-notes, have been presented by Miss Alexander to the Museum of Vertebrate Zoology of the University of California.

The field-notes have been arranged, and are printed at length in the present Report, which appears to have been most carefully and accurately prepared, and to do great credit to our brother Ornithologists of the Far West.

108. *Swarth on Birds from Vancouver Island.*

[Report on a Collection of Birds and Mammals from Vancouver Island. By Harry S. Swarth. Univ. of Calif. Publ. x. No. 1.]

This is an account of another zoological expedition "organized and financed" by Miss Annie M. Alexander and led by her in person during a large part of the summer of 1910. The birds collected on Vancouver Island, and subsequently presented to the Museum of Vertebrate Zoology of the University of California, were 1142 in number. They are referred to 111 species. After an itinerary of the voyage, which is illustrated by a map, a complete list of the species is given, accompanied by a series of excellent field-notes.

109. *Van Pelt-Lechner on Netherland Oology.*

[Oologia Neerlandica. Eggs of Birds breeding in the Netherlands. By A. A. van Pelt-Lechner. The Hague: 1911-12. Parts 2 & 3, 29 and 36 plates respectively.]

We have now received two more parts of this excellent work on Oology. Being written in English, it will doubtless be often consulted by those of us specially interested in the Palaearctic Region, while the details of coloration of the various "layers" of the egg-shell, on which so much stress is laid, are of considerable importance. The plates are beautiful, and the only criticisms of them which we have to offer are that the colour in the eggs of the Grasshopper Warbler is not quite pink enough, while in those of the Chiffchaff the markings are made red and not purplish black, which is almost invariably their colour in Britain. The author himself is probably disappointed with the white eggs, which come out greyish under the process used. The letterpress is particularly valuable where it discusses the egg-characters of a Family as a whole; for instance, where the Falconidæ are divided into three groups in that respect. It must not be forgotten that the text refers to the Netherlands, otherwise we might demur to the Grasshopper Warbler's breeding at times in grain and clover fields, or to the omission of rocks in the case of the nesting sites of the Buzzard, while we are also startled by the statement that sharp objects are put into the hole among young Wrynecks, apparently by the parent bird.

These two parts are devoted to various species of Passeres, to the Picarian and Raptorial Birds, Owls and Pigeons, while the Black Grouse and the Little Bittern shew the transition to other Families.

110. *Wollaston on Papuasia.*

[Pygmies and Papuans. The Stone Age to-day in Dutch New Guinea. By A. F. R. Wollaston. London: Smith & Elder, 1912; pp. i.–xxiv, 1–345, many illustrations, col. and black, and two maps.]

It is somewhat difficult to write a notice of Mr. Wollaston's book for two reasons. Firstly, though, as we are told in the preface, it can hardly be considered other than an official account of the B.O.U. Expedition to Dutch New Guinea, sanctioned by our own Committee, we certainly expected a full and formal Report to have been made to the Union on the results, and especially on the Birds, which are our peculiar province. Secondly, the book, which contains matter of the greatest interest and adventures very well told by the author, is on the whole a work on Ethnology, with important Appendices on a new race of Pygmies by Dr. Haddon, and on languages by Mr. S. H. Ray. In fact, although Mr. Wollaston's pleasantly written story of the Expedition will be more interesting to the public than the more formal Report of the Leader, we hope that Mr. Goodfellow's account may also be forthcoming, and, excellently as Mr. Ogilvie-Grant has described the species of birds procured, fuller information may enable him or others to write at greater length the life-history of the birds of Dutch New Guinea.

The ornithological collection made contains much that is valuable, and has added many new forms to the British Museum, to which most of them have been presented. As the Expedition was unfortunately unable to penetrate to the Snow Mountains, it would naturally be expected that most of the specimens would be procured at the lower levels, and this proves to be the case, most of them having been obtained below 2000 feet, and few above 4000 feet. In all, examples of 235 species were obtained belonging to 42 Families, but 150 of these were of eight Families—Honey-eaters, Flycatchers, Parrots, and Pigeons giving the best results, though the 13 forms of Birds-of-Paradise must be considered the chief prizes. Of these we may give a list :—

1. *Paradisea novæ-guineæ.*
2. *Cicinnurus regius.*
3. *Ptilorhis magnifica.*
4. *Seleucides niger.*
5. *Parotia carolæ mecki.*
6. *Diphyllodes chrysoptera.*
7. *Xanthomelus ardens.*
8. *Chlamydodera lauterbachi.*
9. *Ælurædus stonei.*
10. *Phonygama jamesi.*
11. *Manucodia orientalis.*
12. *M. jobiensis.*
13. *M. altera.*

The *Parotia* was new to science, and a nest with two eggs of *Manucodia altera* provided the first authenticated specimens of the species.

A new species of Glossy Starling (*Calornis mystacea*) was discovered, and *Melanopyrrhus robertsoni* was found to be quite distinct from *M. orientalis.* Among the Honey-eaters *Œdistoma pygmæum* was the rarest capture, except another new species, *Ptilotis mimikæ.* Among the Shrikes *Pachycephala approximans* and *P. dorsalis* were also novelties, while the Cuckoo *Microdynamis parva* was a great acquisition. A large Swift (*Collocalia whiteheadi*), originally described from the Philippine Islands, was a remarkable discovery; while not only was a female of the lately described Lory *Charmosynopsis multistriata* procured, but also a new Paroquet, *Aprosmictus wilhelminæ.* Lastly, a new Cassowary—a dwarf species, to which the name of *Casuarius claudii* has been given—was found in the foothills. We might mention numerous other rare birds, did space permit, but must end by noting that the well-known British Grey and Blue-headed Wagtails and the Garganey were met with by the Expedition.

It is unnecessary to give the names of the party in our own journal, and we all know how excellent their work has been ; but we cannot refrain from deploring the sad death by accident of Mr. Stalker, whose place was so well filled by Mr. Claude Grant.

XXXVI.—*Letters, Extracts, and Notes.*

We have received the following letters addressed "to the Editors":—

Sirs,—Would you kindly call attention in your next issue of 'The Ibis' to a mistake which occurs on page 508 of the last number (July 1912). At the top of that page "*Cœreba luteola major*" should be "*Cœreba luteola*" only, and the words "(Pl. VIII. fig. 2)" which follow "*Cœreba luteola major*" should be transferred from the top of the page to after "*C. luteola major*," about halfway down p. 508.

I am, Sirs,
Yours &c.,
Percy R. Lowe.

The Hatch, Windsor,
July 11th, 1912.

Sirs,—As the references in Mr. R. Gurney's letter (*antea*, p. 352) apply to my papers on Corsican ornithology, I trust that I may be permitted to say a few words in reply.

In the first place the English name of each species is given in the paper in question as well as the scientific name, and where the scientific name is liable to be misunderstood, well-known synonyms have been added in brackets. There is therefore no cause for confusion in the mind of any English reader as to what bird is referred to.

As I stated on p. 322 I have followed Dr. Hartert's nomenclature throughout, as no other writer has studied the races of Palæarctic birds so thoroughly, or taken the trouble to ascertain their correct nomenclature in accordance with the Rules of the International Commission on Zoological nomenclature. It might almost be thought unnecessary in a scientific journal to point out the difficulties caused by non-adherence to rules, when those who, in Mr. Gurney's own words, "have neither time nor inclination to qualify as specialists," yet reserve the right to override law to suit their own convenience. If such a course is generally adopted, it must lead to anarchy.

Space forbids my discussing every detail, but I will take the first instance which Mr. Gurney quotes. He asks what could justify the change of our familiar name *Anas boscas* to *A. platyrhyncha*. In the first place an unjustifiable change has already been made for Linnæus did not write "*boscas*" at all, but *boschas*. Moreover, when he described the male of the Wild Duck under this name, he had already unwittingly described the female as *A. platyrhynchos*. This name has already been universally adopted in America, so that if we were willing to break through the law of priority in this case, we should be faced with the absurdity of having a different scientific name for the same bird on each side of the Atlantic!

Needless to say such a course tends to defeat the whole purpose of scientific nomenclature, which must be treated on the broadest lines and not become the sport of personal or local prejudices.

I am, Sirs,
Yours &c.,
F. C. R. Jourdain.

Clifton Vicarage,
Ashburne,
Derbyshire.

Sirs,—In the last number of 'The Ibis,' p. 559, appears a letter from Mr. H. L. White, wherein he notes that the reference of the white eggs to *Rallina tricolor* seems to have been doubted by me. I think he has confused the editorial comment on my work with my own opinion. I did *not* doubt Barnard's statement, as will be seen by reference to my work (vol. i. p. 235).

Campbell, in his 'Nests and Eggs of Australian Birds,' which is the standard work on Australian oological matters, described the eggs as spotted. He rejected Cockerell's account, and also doubted the white eggs ('Emu,' vol. x. p. 244, 1910) sent to him by Barnard.

Inasmuch as Cockerell, Broadbent, and Barnard have all stated that *Rallina tricolor* lays white eggs, the matter must be considered settled. I have now received a letter from Dr. W. Macgillivray stating that his collector, McLennan, has confirmed the observations of Barnard and also proved that the spotted eggs belong to *Amaurornis moluccana ruficrissa.*

I should conclude that there can be no doubt now that the eggs of *Tomirdus tricolor robinsoni* (= *Rallina tricolor* of Australian ornithologists) are white, while the spotted eggs belong to the other Rail above mentioned.

I am, Sirs,
Yours &c.,
GREGORY M. MATHEWS.

Langley Mount, Watford,
Aug. 25, 1912.

New Book on the Phasianidæ.—A Monograph of the Pheasants, on which Mr. C. William Beebe, of New York, has been at work during the past two years, is now well under way. The work is being financed by Col. Anthony R. Kuser, and will be published, under the auspices of the New York Zoological Society, by Messrs. Witherby & Co. The coloured illustrations are being prepared by Thorburn, Lodge, Jones, and Grönwald in this country, and by Knight and Fuertes in America. These will shew the adult birds, with backgrounds derived from sketches and photographs of their actual haunts. The eggs, nestling, juvenile and first year's plumage will also be figured. In addition there will be upwards of one hundred photogravure plates of the nests, eggs, and haunts of the various species.

The two years of field-work in the Far East which Mr. and Mrs. Beebe accomplished in 1910 and 1911 have been supplemented this summer by several months' study of the collections in London, Tring, Paris, and Berlin.

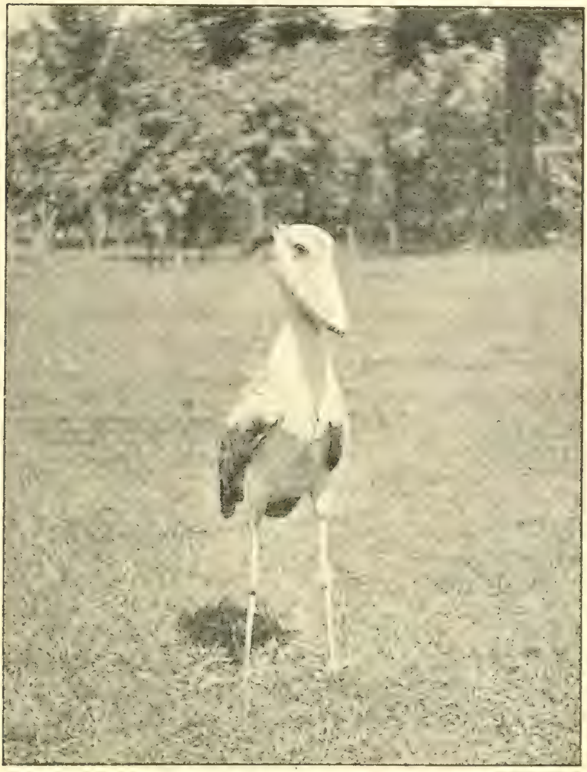
The Shoe-bill in the Regent's Park.—The following particulars concerning the fine Shoe-bill (*Balæniceps rex*) lately received by the Zoological Society of London may be of interest.

On April 12th, 1912, the Sudan Govt. Steamer 'Amka' (from Meshra to Khartoum) reached the first wood-station north of Meshra. On the river between Lake Ambadi and Meshra, Capts. Larken and Lewis, Inspectors of the Bahr el Ghazal Province of the Sudan, and I (Capt. Eric Stephenson, D.S.O., 9th Sudanese) were on board. Before we reached the wood station, the British Engineer in charge of the 'Amka' told us that he had been directed by Mr. A. L. Butler, Director of Game Preservation in the Sudan, to endeavour to capture some Shoe-bills (*Balæniceps rex*). There were many of these birds seen about, but we failed to find any nests, although natives were landed several times at likely spots. Just before reaching the wood-station the engineer told us that an Arab trader had offered him one of these birds, on his way up the river, for £E50. Knowing that traffic in the birds was illegal, we discussed the matter and, on arrival at the station, sent for the "trader" and ordered him to produce the bird, which he did. Capt. Lewis, who was Ruler of the district, being with us, heard the case, and confiscated the bird (as it was illegal to possess it). The native's story was that the trader had purchased this bird some months before from some local natives. On the bird's arrival at Khartoum, the Sirdar determined to send it home, as a present to the Zoological Society of London, at whose Gardens it was delivered safely in July last.

As is well-known the existence of this remarkable bird was first discovered by Mansfield Parkyns of Nottingham.

It was described by John Gould in 1851 (see P.Z.S. 1851, p. 1, pl. xxxv.) and was excellently figured by Wolf (Zool. Sketches, 1864). The name was invented for Gould by the writer of this note, and, strange to say, it is the only name yet given to this remarkable form. In 1860 Mr. Petherick (British Consul at Khartoum) brought home two living specimens (see P. Z. S. 1860, pp. 184 & 196), which were purchased by the Zoological Society of London and lived some months in the Regent's Park.

Text-fig. 14



Shoe-bill in the Giza Zoological Gardens.
(From a photograph taken by Mrs. Stanley Flower.)

There are now three living Shoe-bills in the Zoological Gardens at Giza and one in the Government House Garden at Khartoum.

There are eggs of *Balæniceps* in the British Museum, obtained by Petherick. They are described as of a blunt oval shape, and white in colour, and without any gloss (3·6 × 2·3 inches).—P. L. S.

Courtship of the Redshank.—In a recently issued number of the 'Proceedings of the Zoological Society of London' (1912, part iii. p. 647) will be found an article that will much interest many of our readers. It gives a full account of the courtship of the Redshank (*Totanus calidris*), as observed by the writer (Mr. Julian S. Huxley, Lecturer at Balliol College, Oxford) last spring in a secluded corner of North Wales, of which the exact position is prudently withheld, though we are told that it is in the "northern half of the Bay of Cardigan." The Redshank is supposed to be a well-known species, but when Mr. Huxley returned to "civilization and libraries" he found, to his great surprise, that the observations already recorded on this subject were "either fragmentary or inaccurate." The only writer on it that could be found was our friend Mr. F. C. Selous, who has contributed "a fairly complete account of it" to the 'Zoologist' of 1906. But Mr. Huxley intends to continue his own observations on this attractive subject "when opportunity offers."

New List of British Birds.—A new list of British Birds with the names "revised strictly in accordance with the International Rules of Zoological Nomenclature" has been drawn up by four well-known Ornithologists (Dr. Hartert and Messrs. Jourdain, N. C. Ticehurst and Witherby) and has been published (as will be seen in our advertisements) by Messrs. Witherby and Co. It is proposed to offer some remarks on this work in the next number of 'The Ibis.'

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